DOCUMENT RESUME

ED 356 842 JC 930 252

TITLE	Probing the Community College Transfer Function: Research on Curriculum, Degree Completion, and Academic Tasks.
INSTITUTION	American Council on Education, Washington, DC. National Center for Academic Achievement and Transfer.
PUB DATE	93
NOTE	101p.
AVAILABLE FROM	Publications Department PCC, American Council on Education, One Dupont Circle, Washington, DC 20036 ($15).
PUB TYPE	Collected Works - General (020) -- Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Reports - Research/Technical (143)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	College Graduates; College Planning; *College Role; *College Transfer Students; Community Colleges; Course Content; *Curriculum; Degrees (Academic); Higher Education; Liberal Arts; National Surveys; Predictor Variables; Public Colleges; *Student Behavior; *Teaching Methods; Teaching Styles; Transfer Policy; Two Year Colleges; Two Year College Students
IDENTIFIERS	Transfer Rates (College); *Transfer Studies; Virginia

ABSTRACT

Presenting results of transfer research undertaken between 1989 and 1992, this book examines three different dimensions of student transfer from two- to four-year institutions. Following an introduction by Judith S. Eaton, the first chapter, "The Total Community College Curriculum," by Arthur M. Cohen and Jan M. Ignash, presents results of a 1991 study of course offerings and transfer rates at 164 two-year colleges nationwide, examining the relationship between liberal arts and nonliberal arts enrollments and student transfer. The second chapter, "The Community College Contribution to the Education of Bachelor's Degree Graduates: A Case Study in Virginia," by James C. Palmer and Marilyn B. Pugh, examines the contribution of community colleges to the undergraduate education of baccalaureate degree recipients, utilizing a study of community college credits earned among a random sample of 1,731 students who received baccalaureate degrees from Virginia public universities in 1989-90. The final chapter, "Classroom Contexts and Academic Tasks: A Comparison of Equivalent Courses in Community Colleges and Their Primary Receiving Baccalaureate Institutions," by Janet H. Lawrence and Kathleen Hart, explores the similarities and differences between two- and four-year college instructional methods and styles that may affect the academic success of transfer students. The discussion is based on a comparison of expectations, classroom contexts and academic tasks of 39 faculty at two- and four-year institutions teaching courses defined as equivalent in articulation agreements. Data tables, references, and a discussion of building an institutional action agenda through the research results are included. (PAA)

ED356842

PROBING THE COMMUNITY COLLEGE TRANSFER FUNCTION

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. Eaton

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it

☑ Minor changes have been made to improve reproduction quality

● Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

JC 930 252

BEST COPY AVAILABLE

▼

PROBING THE COMMUNITY COLLEGE TRANSFER FUNCTION

Research on Curriculum,
Degree Completion,
and Academic Tasks

National Center for Academic Achievement & Transfer
American Council on Education

Copyright © 1993 by
American Council on Education

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the Publisher.

American Council on Education
One Dupont Circle
Washington, D.C. 20036

Additional copies of this publication may be purchased from the American Council on Education for $15.00 postpaid. All orders must be prepaid by money order or check (made payable to the American Council on Education) and sent to:

Publications Department PCC
American Council on Education
One Dupont Circle
Washington, D.C. 20036

This publication was produced on a Macintosh Quadra 700 computer using Microsoft Word 4.0, Cricket Graph 1.3.2 and Aldus PageMaker 4.2 software.

4

TABLE OF CONTENTS

CONTRIBUTORS .... *v*

INTRODUCTION AND OVERVIEW 1

Judith S. Eaton

THE TOTAL COMMUNITY COLLEGE CURRICULUM 9

Arthur M. Cohen and Jan M. Ignash

THE COMMUNITY COLLEGE CONTRIBUTION TO THE EDUCATION OF BACHELOR'S DEGREE GRADUATES: *A Case Study in Virgina* 45

James C. Palmer and Marilyn B. Pugh

CLASSROOM CONTEXTS AND ACADEMIC TASKS: *A Comparison of Equivalent Courses in Community Colleges and Their Primary Receiving Baccalaureate Institutions* 71

Janet H. Lawrence and Kathleen Hart

Both the research reported herein and this monograph have been made possible by the generous support of The Ford Foundation through the National Center for Academic Achievement and Transfer of the American Council on Education.

CONTRIBUTORS

Arthur M. Cohen is professor of higher education at the University of California, Los Angeles, president of the Center for the Study of Community Colleges, and director of the ERIC Clearinghouse for Junior Colleges.

Judith S. Eaton is president of the Council for Aid to Education and former director of the National Center for Academic Achievement and Transfer of the American Council on Education.

Kathleen Hart is a graduate research assistant at the Center for the Study of Higher and Postsecondary Education, The University of Michigan.

Jan M. Ignash is a research assistant at the Center for the Study of Community Colleges.

Janet Lawrence is associate dean and associate profesor, School of Education, Program in Higher and Adult Continuing Education, The University of Michigan.

James C. Palmer is assistant professor, Department of Educational Administration and Foundations, College of Education, Illinois State University.

Marilyn B. Pugh is a faculty member at Prince George Community College in Maryland and a doctoral candidate at George Mason University.

INTRODUCTION AND OVERVIEW

JUDITH S. EATON

Between 1989 and 1992, the National Center for Academic Achievement and Transfer of the American Council on Education commissioned several research projects on transfer. The projects examined three dimensions of transfer: the role of curriculum, the role of the community college in baccalaureate degree acquisition, and the role of academic tasks that faculty ask students to complete. These studies, taken together, answer fundamental questions about the flow of transfer students from two-year to four-year institutions:

- What is the relationship between the curriculum (especially the liberal arts curriculum) and transfer?

- What is the community college contribution (in terms of credits earned and courses pursued) to the undergraduate education of baccalaureate degree recipients?

- Are there similarities and differences in community college and baccalaureate instruction (methods and styles) that may affect the academic success of transfer students?

While these studies do not constitute an examination of all aspects of the transfer experience, they do provide useful insights into the academic foundation of the community college transfer function and suggest avenues for further research.

The curriculum study presented here was conducted at the Center for the Study of Community Colleges (CSCC) by Arthur M. Cohen and Jan M. Ignash. The study of the role of the community college in baccalaureate degree acquisition in the Commonwealth of Virginia was conducted at the Center for Community College Education at George Mason University by James C. Palmer and Marilyn Pugh. The study of academic tasks was undertaken by Janet Lawrence and Kathleen Hart at the Center for the Study of Higher Education at The University of Michigan's School of Education.

THE TOTAL COMMUNITY COLLEGE CURRICULUM STUDY

This 1991 study examined liberal arts and nonliberal arts course enrollments at community colleges and explored their relationship to transfer. The liberal arts included humanities, English, fine and performing arts, social science, science, and math and computer science courses. The nonliberal arts included all other courses and was dominated by subjects commonly designated as "occupational." Catalogs and class schedules of a random sample of 164 institutions affiliated with the American Association of Community Colleges were examined. Transfer rates for these institutions were determined by calculating the portion of the student population entering higher education for the first time, earning at least 12 credits at a community college and, within four years, enrolling at a four-year institution. With regard to the liberal arts, the study addressed five questions:

- How have liberal arts offerings changed in recent years?
- What is the fastest-growing subject area?
- Does college size or locale relate to course patterns?
- How does a college's liberal arts curriculum relate to its transfer rate?
- Does the curriculum differ in colleges with higher or lower minority student enrollments?

Research confirmed that the liberal arts have changed in recent years, but not a great deal. According to the study, the liberal arts expanded from 52 percent of the curriculum in 1986 to 56 percent in 1991.

There are two reasons for this growth: first, many students view the community college as an entryway to the baccalaureate, and second, even among occupational programs, a general education component comprising chiefly liberal arts courses is required. Course enrollments show the continued dominance of traditional general education courses: English composition, introductory math, psychology, history, and political science.

The fastest-growing subject area between 1986 and 1992 was foreign languages, *an expansion fueled almost exclusively by English-as-a-Second-Language (ESL) courses*. Foreign language enrollments (mainly ESL) increased from 5 to 8.5 percent of all liberal arts classes.

College locale and size *do* matter. Colleges in urban areas offer a higher percentage of remedial courses. Larger colleges are more likely to offer specialized classes—for example, dance or cultural geography.

The proportion of the total curriculum accounted for by the liberal arts is correlated with the transfer rate. The transfer rate of a *community college is positively related to the percentage of liberal arts courses that it offers.* However, there is no relationship between the percentage of *advanced* liberal arts courses offered and a college's transfer rate.

Colleges with a higher percentage of minorities have a higher percentage of liberal arts enrollments. This finding contradicts the oft-stated contention that minorities are tracked into vocational programs. However, colleges with higher percentages of minority students have lower transfer rates. The lower transfer rate of minorities requires explanation, but that explanation is not to be found in the curriculum.

Nonliberal arts courses generally considered as "career" or "occupational" were categorized as business, health, technologies, and trades. Courses taken for personal enrichment were also tabulated; physical education accounted for a large proportion of these courses. The study focused primarily on whether such courses were transferrable. It confirmed that while many of these courses are accepted by four-year institutions, they are accepted in a highly idiosyncratic way.

Two primary factors seem to determine whether nonliberal arts courses are transferrable: the nature of the receiving institution (whether it is, for example, a research university or a comprehensive college) and whether it offers coursework and programs similar to those offered by the community college. While most baccalaureate-granting institutions offer liberal arts courses, programs centering on nonliberal arts offerings are not uniformly available. Hence, programmatic specialization plays a key role in the transferability of the nonliberal arts.

THE BACCALAUREATE RETROSPECTIVE

James C. Palmer and Marilyn Pugh address the questions of how and to what extent students in Virginia utilize community colleges as a stepping stone to the baccalaureate. They sought to understand the role of the community college in relation to baccalaureate degree acquisition. They analyzed transcripts for a random sample of 1,731 students who received a baccalaureate degree from any of six of Virginia's public universities during academic year 1989–90. Their findings confirm that the community college plays a highly variable role for students on their way to the baccalaureate.

Palmer and Pugh found that 39 percent of the graduates had earned at least one credit at a community college. The number of community college credits earned by these students varied greatly, ranging from one to 155, with a median of 24. Students were equally likely to earn as few as six community college credits as they were to earn more than 60; 25 percent of the students earned six or fewer credits; and 25 percent earned 61 or more credits. Students were highly unlikely to earn an associate's degree, although a significant percentage began their collegiate work at a community college:

- 15 percent of the students earned an associate's degree;
- 48 percent of the students began their higher education at a community college;
- 52 percent of the students attended a community college *after* beginning their postsecondary experience elsewhere.

In general, the community college functioned primarily as a resource for arts and sciences coursework. Community college education served as a supplement for many students, though it did provide "more formidable" portions of the undergraduate experience for some. Most frequently, the community college is used as an "occasional" institution at which students earn considerably less than the equivalent of two years of full-time work, are not engaged in sequential learning experiences, and are highly independent in their decision making about which community college courses they pursue.

Despite tracking this highly idiosyncratic use of the community college, the study documents some central tendencies. When community college credits were earned by the graduates, most were in the arts and sciences. Hence, community colleges were used primarily for arts and sciences courses that augmented the four-year institution's curriculum. In addition, most students divided their undergraduate work between two institutions, rather than three or four.

Palmer and Pugh conclude that baccalaureate graduates use the community college on their own terms and do not follow the coherent curricular experience outlined by the institution. The community colleges used by students in the study sample are not, in fact, providers of curricular paths. Instead, they are providers of course offerings that can be used in any number of ways to fulfill baccalaureate degree requirements.

According to Palmer and Pugh, the key challenge is to help students who fall within these central tendencies, but who do not follow the associate's degree path. They suggest joint work on curricula leading to defined outcomes that are not part of a degree program. They urge transfer and articulation policies that encourage a structured, sequential use of the curriculum and the general strengthening of curricular ties.

ACADEMIC TASKS

This research project focused on identifying similarities and differences in faculty expectations for students and the way these faculty teach. Lawrence and Hart did this by comparing both the classroom contexts and academic tasks in community college courses with their equivalents in receiving baccalaureate institutions. "Classroom context" comprises the faculty member's expectations for students and her methods of introducing the subject matter. "Academic tasks" are major assignments (such as tests and writing projects) that faculty ask students to complete. The goal of the research was to suggest how similarities and differences in these aspects of equivalent courses might affect transfer students as they move to a four-year institution.

Lawrence and Hart categorized instructional activities in order to identify classroom practices that were similar or different. They examined introductory courses in English, history, political science, calculus and chemistry at three sending community colleges and one primary receiving institution. Lawrence and Hart interviewed the faculty teaching these courses, and they scrutinized course documents such as syllabi, tests and quizzes, and writing assignments. They also examined college catalogs and grading procedures. They asked faculty about course material covered, how faculty worked with students, whether students were encouraged to work independently or in groups, and the kind of feedback students received about tests and papers.

Based on this information, Lawrence and Hart developed profiles of each course organized around six characteristics: the topics covered, course goals, teaching methods, grading practices, faculty expectations for students, and academic tasks assigned in each course. All research findings from this project are discipline specific. Lawrence and Hart do not offer any generalizations across the disciplines they studied.

With regard to calculus and chemistry, all six characteristics were similar between the community colleges and the university. Political science, however, was a different matter: Lawrence and Hart confirmed great variation in political science, both across institutions and within individual institutions. This was true for all characteristics of the political science profile.

The variations in history and English were not as great as in political science, but neither were the courses as similar as the chemistry and calculus courses. For both calculus and chemistry, decisions about course content were made at the departmental level. (This was less true of either political science or history.) In history courses, goals tended to be similar across institutions, while teaching and student evaluation methods differed.

In English courses, the topics covered were similar, but the emphasis given to those topics varied. Course assignments also varied, with baccalaureate faculty expecting more writing and more extensive use of written resources (as opposed to the personal experiences of students). As with history, teaching and student evaluation methods varied.

Lawrence and Hart further assert that with regard to the six characteristics of the profile, there are few differences between full-time and part-time faculty. They note only one exception: part-time faculty had less time to spend with students.

ANSWERING THE FUNDAMENTAL QUESTIONS

The Relationship Between the Liberal Arts and Transfer

According to the findings of the curriculum study, the liberal arts are central to transfer. This is true for two reasons: as Cohen and Ignash documented, the greater the presence of the liberal arts, the higher an institution's transfer rate. Further, Palmer and Pugh's work adds weight to the Cohen and Ignash finding: however variable the community college role in baccalaureate acquisition in Virginia, students took primarily arts and sciences courses.

The Role of the Community College in Baccalaureate Acquisition

Palmer and Pugh's work confirms that the community college is important because large numbers of students attend the community college on the way to the baccalaureate. Their work also demonstrates that community colleges serve many functions: data revealed no predominant types of courses taken or number of credits earned. Finally, the research raises serious questions about the extent to which the associate's degree provides a structured educational experience for students.

Similarity and Difference in Academic Tasks

Lawrence and Hart's research confirms that the extent of similarity or difference in courses offered by both community colleges and four-year schools is a function of discipline and that there is significant within-college variation across disciplines. Their research suggests key differences in classroom contexts that should serve as focal points for research designed to determine whether course similarity enhances the success of transfer students.

USING THE RESEARCH TO BUILD AN INSTITUTIONAL ACTION AGENDA

The studies included herein focus on the community college's responsibility for several aspects of the curriculum: *content*, *structure*, and *portability*.

With regard to curricular content, the Curriculum Study can function as a point of departure for institutional inquiry into which courses positively affect the institution's transfer rate. Cohen and Ignash's research indicates that the liberal arts have a strong presence in institutions with high transfer rates. Thus, a single institution can examine its transfer rate over time in relation to course enrollments to determine the impact of the curriculum on transfer.

Palmer and Pugh's research points the way for further inquiry into the structure of the curriculum. While their work does not posit any connection between the community college's curricular structure and students' earning of a baccalaureate, it does suggest the need for several investigations. If, for example, the community college provided curricular paths for baccalaureate-bound students, would the number of these pre-baccalaureate students increase, and would their level of academic performance improve? Second, the associate's degree requires review. Third, it is at least plausible that curricular paths within the community college can lead to the establishment of curricular bridges from the community college to the four-year institution.

Finally, Lawrence and Hart's work points to the need to relate academic task similarity (portability) to transfer success. Their work to date provides an important service: it structures the dialogue through which faculty can begin to address the critical subject of portability.

◆◆◆

The work of these researchers has provided the higher education community with important data and information about the transfer function. While much remains to be done, the foundation for establishing transfer effectiveness has been greatly enhanced.

THE TOTAL COMMUNITY COLLEGE CURRICULUM

Arthur M. Cohen, President, Center for the Study of Community Colleges and Jan M. Ignash, Research Associate, Center for the Study of Community Colleges*

The liberal arts as a focus of study derive from the belief that human knowledge and societal cohesion are grounded in rationality. In the earliest American colleges, this doctrine gave rise to a curriculum centering on philosophy, languages, science, and rhetoric. Subsequently, the liberal arts were codified in academic disciplines in the universities and expanded as new ways of organizing knowledge came to the fore. When community colleges were founded early in the twentieth century, they installed the liberal arts, gradually modifying them in accordance with shifting fashions of academic organization and with attention to the capabilities and interests of their students. Despite frequent attempts to shift the curriculum toward studies more directly vocational, the liberal arts, with more than half the enrollment, remain the centerpiece of community college studies.

The Center for the Study of Community Colleges (CSCC) has examined the liberal arts in community colleges nationwide in a series of studies that began in 1975 with a grant from the National Endowment for the Humanities. Since then, CSCC staff have studied various other subsets of the liberal arts as listed:

---

* Additional analyses and contributions to this report were made by William Armstrong, Chuck Brinkman, R. David Cartwright, Shannon Hirose, Melissa Mellissinos, and Barry Vanderkelen.

Date	Sponsor	Number of Colleges in Sample	Curricula Reviewed
1975	NEH	156	Humanities
1977	NEH	178	Humanities
1978	NSF	175	Sciences and Social Sciences
1983	Ford	38	All liberal arts
1986	Carnegie	95	All liberal arts
1987	Ford	109	Fine and Performing Arts
1991	NCAAT	164	All liberal arts

These studies have tallied one or a combination of such variables as the relative magnitude of each academic discipline, enrollments, class size, number of colleges offering the various courses, faculty goals, programmatic patterns, student interests, and the prevalence of remedial instruction and advanced courses. The findings of the CSCC studies have been reported in numerous papers, many of which are summarized in *The Collegiate Function of Community Colleges* (Cohen and Brawer, 1987). This paper reports the findings of the 1991 study.

However, the 1991 liberal arts study is only part of CSCC's entire effort to study the curriculum. In 1992, for the first time in the 16 years CSCC has been studying the community college curriculum, the center tracked the non-liberal arts segment of the curriculum, as well. This portion of the curriculum, accounting for only one-fourth or less of the total community college curriculum well into the 1950s, now accounts for 43 percent of the total credit curriculum. In addition, courses in this segment of the curriculum, once considered "terminal" education designed to lead directly to employment and not applicable for baccalaureate credit, now are often offered for transfer credit. Clearly, the non-liberal arts have grown in terms of proportion of the curriculum offered and as an avenue to further study. The second half of this paper reports the results of CSCC's Non-Liberal Arts Study.

THE LIBERAL ARTS

Methodology

The data for the liberal arts study were obtained from 164 community colleges throughout the United States by randomly sampling the colleges listed in the 1990 *Directory of the American Association of Community and Junior Colleges*. The sample was approximately balanced according to size with 51 small (less than 1500 students), 56 medium, and 57 large (more than 6,000 students) colleges in the set. Because a special effort was made to include the colleges that were participating in the National Center for Academic Achievement and Transfer's partnership grant program, the sample was tilted somewhat toward colleges that enroll higher proportions of underrepresented minority-group students.

Catalogs and class schedules for spring 1991 were obtained from the colleges, and course sections in the liberal arts were counted and tallied according to the coding scheme used in the prior studies. The scheme divides the liberal arts curriculum into six major disciplines—humanities, English, fine and performing arts, social sciences, sciences, and mathematics and computer sciences. These six disciplines are further divided into 55 broad subject areas. For example, the sub-subject area "French" is part of the broad subject area "Foreign Languages," which is part of the "Humanities" discipline. For a course section to be listed, the class schedule had to designate a meeting time and place; laboratory, independent study, cooperative, apprenticeship, and field-work classes were not included.

To code each liberal arts course at the appropriate proficiency level, definitions for remedial, standard, and advanced courses were used. "Remedial" applies to any compensatory, developmental, or basic course which is below college-level proficiency and which typically does not carry college transfer credit. "Standard" courses are "first-tier" or "introductory" courses which have no same subject-area prerequisite for enrollment and which carry college graduation or transfer credit. "Advanced" courses carry a prerequisite in the same or a related field as a condition for enrollment.

After coding and tallying 59,205 liberal arts classes into the appropriate sub-subject areas, a random sample of every tenth section under each broad subject area was pulled. The colleges were asked to provide either second-census or end-of-the-term enrollment figures for this sample. The number of sections that had been canceled in each subject area was also noted. Enrollment and average class size figures were then calculated, based on the 164 colleges, and extrapolated to the population of 1,250 U.S. community colleges. Finally, the scheduled course sections in the remainder of the curriculum were counted in order to determine an approximate ratio of liberal arts to non-liberal arts offerings.

RESEARCH QUESTIONS

The study provided data on many aspects of the liberal arts curriculum, and, together with the earlier CSCC studies, was used to plot trends in the various subject areas. Additional data that were available from a complementary study of transfer rates in 52 of the 164 participating colleges and IPEDS data on the ethnic composition of the student body in all the colleges made it possible to answer a number of questions:

- How have the liberal arts changed in recent years?
- What is the fastest-growing subject area?
- Does college size or locale relate to course patterns?
- How does a college's liberal arts curriculum relate to its transfer rate?
- Does the curriculum differ in colleges with higher or lower minority student enrollments?
- To what extent does the curriculum reflect a college's graduation requirements?

How Have the Liberal Arts Changed in Recent Years?

In general, the liberal arts have expanded. In 1991, they accounted for approximately 56 percent of the curriculum, up from 52 percent in 1986. Very little of this expansion can be traced to innovation or new course designs; most resulted from higher proportions of students enrolling in traditional liberal arts classes.

With few exceptions, the liberal arts reveal remarkable stability. Many of the subject areas continue to be offered by nearly all (90 percent plus) of the colleges: history, literature, political science, English, economics, psychology, sociology, biology, chemistry, math and computer science. Total enrollments in these subjects reflect their dominance. (See Table 1.) However, the ubiquity of the offerings and the enrollment figures mask certain changes.

Foreign languages, detailed in the section on ESL below, are offered by less than 90 percent of the colleges, but their enrollments, tripling between 1978 and 1991, are exceeded only by English and math. In that same 13-year interval, enrollments in psychology, biology, physics, chemistry, and math doubled, but those in literature, history, and political science changed only negligibly. Therefore, although some basic subjects continue to be offered nearly everywhere, the overall number of students taking them shifts markedly.

▼

TABLE 1

Total Student Enrollment Figures and Average Class Size for All Liberal Arts Areas

Subject	Enrollment	Average Size
ENGLISH	1,317,400	21
FINE AND PERFORMING ARTS		
Dance	27,600	16
Music	95,800	11
Theater	19,600	14
Visual Arts	151,700	11
HUMANITIES		
Art History/Appreciation	84,700	28
Cultural Anthropology	31,100	30
Fine and Performing Arts (History/Appreciation)	29,900	28
Foreign Languages	460,700	20
History	396,500	31
Interdisciplinary Humanities (includes Cultural Geography)	94,200	35
Literature	120,900	23
Music History/Appreciation	65,600	27
Philosophy and Logic	143,200	29
Political Science	249,000	29
Religious Studies	14,300	35
Social/Ethnic Studies	13,400	26

Table 1 Continued

Subject	Enrollment	Average Size
MATHEMATICS AND COMPUTER SCIENCES		
Advanced Mathematics	87,700	20
Applied Math/Technology-Related	41,600	18
Computer Science Technology	147,200	23
Introductory and Intermediate Mathematics	766,100	24
Math for Other Majors	99,700	23
Statistics and Probability	69,000	27
SCIENCES		
Biological Sciences (including Agriculture Science/Natural Resources)	405,500	26
Chemistry	130,200	20
Earth and Space Sciences (includes Environmental Science)	85,100	32
Engineering Sciences & Technology	102,200	15
Geology	24,100	24
Integrated Science	43,400	27
Physics	80,100	19
SOCIAL SCIENCES		
Anthropology	28,000	23
Economics	173,500	27
Geography	19,500	24
Interdisciplinary Social Sciences	30,100	20
Psychology	455,100	30
Sociology	256,300	31

Other changes were seen in special-group and remedial studies. CSCC staff coded such courses as "Women's Literature," "Afro-American History," and "Sociology of Mexican Americans" in Group Literature (offered by more than half of the colleges), History of Special Groups (offered by more than one-third of the colleges), and Sociology of Particular Groups (offered by one-fourth of the colleges), respectively. Ethnic studies, coded only if it was listed as a separate course or program, was found in only 10 percent of the colleges. Thus, the CSCC findings should not be compared with those reported by Levine and Curreton (1992), who tallied each special-group course as "Ethnic Studies" or "Women's Studies."

▼

TABLE 2

Percent of Colleges Providing Remedial, Standard, and Advanced Courses in the Six Major Discipline Areas

Discipline	Remedial	Standard	Advanced
English	89	99	84
Fine & Performing Arts	0	83	75
Humanities	1	97	80
Math & Computer Science	65	98	86
Science	5	100	87
Social Science	0	98	59

Percent of Remedial, Standard, and Advanced Course Offerings in Each Major Discipline Area

Discipline	Remedial	Standard	Advanced
English	30.5	49.7	19.8
Fine & Performing Arts	0.0	62.8	37.2
Humanities	.1	82.5	17.4
Math & Computer Science	15.9*	62.2	21.9
Science	1.0	67.6	31.7
Social Science	0.0	85.8	14.2

*Self-paced, individualized, and lab courses were not counted. A large number of remedial math courses were self-paced, individualized, and lab courses, which explains the low remedial math percentage.

Remedial studies remain prominent in English and math. (See Table 2.) Approximately 30 percent of the class sections offered in English are at the remedial level, down from 37 percent 15 years ago, and the percentage of remedial math classes dropped by half: from 32 to 16 percent. These changes resulted not because the incoming students were better prepared, but because math labs have become more widespread; the CSCC study did not count enrollments in lab courses. Furthermore, much of the remedial English instruction is taking place in tutorial settings and in courses coded as "College-Level Introductory Composition," but which may be taken repeatedly; Florida's College Level Academic Skills Test requirement, for example, has stimulated much of the latter.

Intracourse shifts undoubtedly have been occurring, as well. Certainly few, if any, instructors are teaching "U.S. History to 1877" in the same fashion they once did; the texts and syllabi have been modified to account for the contributions of women and minorities. But if the course carries the same title, it is coded as the same course.

What is the Fastest-Growing Subject Area?

English as a Second Language (ESL) is far and away the fastest-growing area in community colleges. In fact, the phenomenal growth in foreign languages (from 5 percent of the entire liberal arts enrollment in 1986 to 8.5 percent in 1991) is due solely to the continuing rise in ESL. ESL represented 30 percent of the foreign language enrollments in 1983, 43 percent in 1986, and 51 percent in 1991 when 244,306 students were enrolled. The percentage of colleges offering ESL grew from 26 in 1975 to 41 in 1991. Among the colleges offering ESL, 58 percent offered from one to 25 sections, 36 percent offered from 26 to 100 sections, and the remaining 6 percent offered more than 100 sections. Some of the colleges offering large numbers of ESL sections are listed below:

College	Number of ESL Sections Offered
Yuba College, Marysville, CA	70
Pasadena City College, CA	71
Community College of Philadelphia, PA	83
San Jose City College, CA	89
Miami-Dade Community College (South Campus), FL	152
Passaic County Community College, Paterson, NJ	160
Harry S Truman College, Chicago, IL	243
El Paso Community College, TX	429

ESL takes many forms. At El Paso Community College, programs in ESL and English for Special Purposes (for advanced students) were available, as well as bilingual education programs which offered instruction in content areas in Spanish. A sample of classes taught bilingually included organizational behavior, U.S. history since 1865, and medical terminology. Miami-Dade Community College separates acronyms for its ESL programs to clearly designate which courses count toward graduation requirements (labeled ESL in the course catalog) and which do not (labeled ENS—English for Non-Native Speakers). Miami-Dade also maintains a Bilingual Institute for Business and Technology, where students can learn technical terminology in both English and Spanish.

All the large colleges offer classes in English language instruction to both ESL and English as a Foreign Language (EFL) students—that is, to both U.S. citizens and immigrants whose native language is not English, as well as to foreign students. Passaic County Community College maintains separate ESL programs for foreign students and for U.S. immigrants and citizens. Most colleges with sizable ESL populations offer special bilingual/ESL services to Limited English Proficiency students to help them succeed in regular coursework. Harry S Truman College offers ESL-TV for Spanish-speaking adults. Many large campuses maintain bilingual assistance centers for students whose native language is Spanish, but few have established centers for students whose native language is not Spanish.

ESL students from numerous language groups sometimes represent substantial proportions of the college's population, as at Passaic County Community College, where 35 percent of the students take some form of ESL. The Gujarati-speaking population at Passaic is second only to the Spanish-speaking ESL population at the college. At the Community College of Philadelphia, ESL students come from 56 countries; 21 percent of the students are Vietnamese, 17 percent are Spanish, and 14 percent Russian. At Harry S Truman College, 60 percent are Russian. Thirty-six percent of Pasadena City's ESL students speak some dialect of Chinese as their first language. And at Yuba College, the Hmong students have only recently fallen behind Spanish-speaking ESL students as the largest language group.

With almost a quarter of a million students occupying seats in ESL classes at community colleges across the United States, and with these numbers expected to increase, many policy implications loom. For example, since 60 percent of ESL sections are offered for beginning or intermediate-level students, the time it takes a student to complete a degree program will grow as more students spend more time studying English to prepare for degree-credit classes. In just five years, ESL has jumped a full 70 percent of its share of the total liberal arts curriculum. Its impact on the overall instructional program has yet to be traced.

Does College Size or Locale Relate to Course Patterns?

A perennial problem in comparing rural colleges with urban colleges and small colleges with large colleges is that few rural colleges are large, and few urban colleges are small; therefore, any differences that appear may be related to size or to locale, or to both. The distribution of colleges in the CSCC sample points to the pattern: only three of the small colleges were in urban settings, and only two of the large colleges were in rural areas.

Nevertheless, it is possible to make some comparisons. As noted in Table 3, college size is only modestly related to general curriculum patterns. With the exception of a tilt toward science at the smaller colleges and toward humanities at the larger ones (an effect of the numerous sections of ESL), rounding error may account for the small differences shown.

▼

TABLE 3

*Liberal Arts Curriculum by Size of Institution**

	Percent of Liberal Arts Curriculum Which Is:					
Size of Institution	English	Fine Arts	Humanities	Computer Science	Science	Social Science
Small	22	10	21	18	18	12
Medium	23	08	22	21	14	13
Large	23	10	25	18	13	11

*Totals exceed 100 percent because of rounding.

The curricular differences that may be attributed to college locale can be computed by viewing just the medium-size colleges. But as Table 4 demonstrates, few differences appear except for the greater percentage of Humanities courses (again ESL-dominated) at the urban colleges. Thus, like college size, locale is not substantially related to the distribution of liberal arts courses across the curriculum.

▼

TABLE 4

Liberal Arts Curriculum at Medium-Sized Colleges by College Locale

	Percent of Liberal Arts Curriculum Which Is:					
Size/Locale of Institution	**English**	**Fine Arts**	**Humanities**	**Computer Science**	**Science**	**Social Science**
Medium Rural	23	9	19	20	15	14
Medium Suburban	22	9	21	23	13	12
Medium Urban	23	8	25	19	14	12
Full Sample	22	9	24	20	14	12

Does the availability of remedial or advanced courses vary? The curriculum at the medium-sized rural colleges includes a smaller percentage of remedial courses and a larger percentage of advanced courses. The rural institutions offer three sections of advanced courses for every remedial section offered, while suburban institutions offer 1.9 and urban institutions offer 1.4 advanced sections for every remedial section. For the overall sample, the ratio is 2.2 advanced sections for each remedial section. These differences are more pronounced than those based on size, and they suggest some real differences in the curricular structure. As Richardson and Bender (1987) have argued, urban institutions apparently *do* devote a greater proportion of their curriculum to remedial studies, and, consequently, a smaller proportion to advanced level courses.

The availability of specialized courses in certain disciplines varies even more markedly. Smaller institutions cannot offer as many total class sections as the medium and large institutions. What choices do they make? Table 5 displays the subject areas offered. The larger the college, the greater the likelihood of its offering courses other than basic general studies requirements. From art history to statistics, the ratio of colleges providing specialized classes drops as college size decreases, with the most pronounced differences evident in cultural anthropology, cultural geography, dance, earth/space science, fine arts appreciation, and geology. Differences of this magnitude are not evident when the medium-sized colleges are compared on the basis of location.

In summary, the major liberal arts disciplines are evenly distributed across all community colleges, regardless of size or setting, suggesting that students seeking a general education can obtain basic courses anywhere. Finding advanced courses and courses in specialized subject areas is a different matter. Students at large community colleges have a wide variety of subjects to choose from, but students at smaller colleges and those in rural areas may have fewer choices.

▼

TABLE 5

Percentage of Community Colleges Offering Liberal Arts Classes, by Institutional Size

Course	Small	Medium	Large
ENGLISH	98	98	100
FINE AND PERFORMING ARTS			
Dance	6	24	40
Music	42	73	90
Theater	26	51	60
Visual Arts	57	86	97
HUMANITIES			
Art History	57	88	91
Cultural Anthropology	15	37	83
Cultural Geography	6	24	40
Fine & Performing Arts History/Apprec.	19	41	74
Foreign Languages	70	88	98
History	83	92	98
Interdisciplinary Humanities	26	42	71
Literature	81	93	98
Music History/Appreciation	51	71	86
Philosophy	55	68	95
Political Science	83	86	98
Religious Studies	13	25	26
Social and Ethnic Studies	8	3	31

Table 5 Continued

Course	Small	Medium	Large
MATHEMATICS AND COMPUTER SCIENCES			
Advanced Math	68	88	98
Applied Math	38	56	72
Computer Sciences	77	92	98
Introductory & Intermediate Math	96	98	100
Math for other Majors	62	85	93
Statistics	50	83	98
SCIENCE			
Agriculture and Natural Resources	17	17	19
Biological Sciences	85	97	100
Chemistry	79	97	100
Earth/Space Science	19	44	81
Engineering	45	80	97
Environmental Science	15	10	26
Geology	21	33	69
Integrated Sciences	34	41	62
Physics	74	86	98
SOCIAL SCIENCE			
Anthropology	17	22	59
Economics	87	93	98
Geography	28	42	57
History/Sociology/Phil. of Science	2	5	7
Interdisciplinary Social Sciences	21	32	50
Psychology	96	98	100
Sociology	83	97	100

Are Curriculum and Transfer Rate Related?

If, as conventional belief has it, the liberal arts are provided primarily for students expecting to transfer to baccalaureate-granting institutions, then that curricular area should be more prominent at colleges with higher student transfer rates. To test that proposition, CSCC staff matched the data from the curriculum study with the findings from a study of transfer rates that CSCC was conducting simultaneously. The definition of transfer rate was: The number of students who entered a community college in fall 1986 with no prior college experience and who completed at least 12 college credit units there, divided into the number of that group who matriculated at a senior institution by spring 1991. Fifty-two colleges participated in both the curriculum and transfer studies. For comparison purposes, ESL was removed from the liberal arts data set because it is not a typical transfer-related curriculum.

To test the relationship between the proportion of liberal arts courses in the total curriculum and transfer rates, the means for both liberal arts ratios and transfer rates were derived, and the colleges were placed into low and high categories. Colleges with liberal arts ratios at or above the mean were placed in the high category, those below were placed in the low category. Similarly, colleges with transfer rates below the mean were placed in the low category, and colleges with transfer rates above the mean were placed in the high category. Similarly, These categories were crosstabulated. Findings were that among those colleges with transfer rates below the sample mean, 69 percent were also below the mean for the proportion of liberal arts offerings at the college. Among those colleges with transfer rates classified as high, 63 percent were high in liberal arts offerings. (These were statistically significant relationships at the .05 level.)

A second analysis compared the ratios of remedial, standard, and advanced courses with the college's transfer rates. No significant relationships were found. Thus, while the proportion of liberal arts courses at the colleges appears to be related to transfer, these differences are less apparent when analyzed by course level.

Does the Curriculum Differ at Colleges with Higher or Lower Minority Student Enrollment?

A perennial issue in the analysis of community colleges is the extent to which they assist or retard their students' progress toward the baccalaureate. Because most of the minority-group students who pursue higher education begin at a community college, and because the students who start there seem less likely than native university students to progress toward the baccalaureate expeditiously, numerous analysts have contended that college policies and procedures are detrimental to that progress (see, for example, Astin [1977] and Pincus and Archer [1989]). The curriculum that the colleges provide frequently is criticized for its emphasis on vocational studies; Brint and Karabel (1989) and Grubb (1991), in particular, cite the vocational studies emphasis as a major contributor to the students' failure to gain higher degrees.

If these contentions have merit, then the curriculum at colleges with high proportions of non-white students should reflect a distinct bias away from the liberal arts. To test that proposition, CSCC staff ran a correlation using the percentage of liberal arts courses offered and the percentage of non-white students. The correlation yielded a positive relationship (.32) that was significant at the .05 level. This correlation indicates that the larger the non-white student population, the larger the number of liberal arts course offerings. As for the curriculum level, the analyses demonstrated no significant relationships between the ethnic composition of a school and the percent of remedial, standard, and advanced courses in the liberal arts curriculum.

Based on these findings, the contention that colleges with high proportions of minorities tend to offer fewer liberal arts classes is not supported. In fact, the colleges with higher percentages of minorities offer more liberal arts courses. The ratio in a few colleges is startling. At Atlanta Metropolitan College (GA), 91 percent of the student population is non-white, and 79 percent of the curriculum is devoted to liberal arts. At Borough of Manhattan Community College (NY) non-white students account for 91 percent of the population, and liberal arts courses account for 71 percent of the curriculum. In comparison, colleges with smaller percentages of non-white students, such as Williamsburg Technical College (SC)—36 percent, and Triton (IL)—28 percent, have percentages of liberal arts curriculums that fall below the mean.

However, noting that ESL was coded under liberal arts and that a community college with a large non-white population may offer more ESL classes than a college with a smaller non-white population, another correlation was run with ESL sections extracted from the percentage of liberal arts courses offered. Although it was not significant, the correlation continued to reveal a positive relationship (.19). Therefore, even while controlling for ESL, the contention that the colleges with high proportions of minorities tend to offer fewer liberal arts classes still is not supported. Even with ESL taken out of the liberal arts, the percentage of liberal arts courses offered at Atlanta Metropolitan and Borough of Manhattan Community College remained above the mean—68 percent and 60 percent, respectively. Ethnic minorities do have access to liberal arts curricula and college-level courses.

Still, it appears that the larger the percentage of non-white students, the lower the transfer rate. At the colleges with a low percentage of minority students, 57 percent had low transfer rates; at the colleges with large numbers of minority students, 85 percent had low transfer rates. Therefore, while a higher concentration of minority students at community colleges is related to more liberal arts course offerings, it also is associated with a lower transfer rate. Whatever the reasons, they should not be attributed to the curriculum. Vocational-course tracking cannot be blamed.

Are Graduation Requirements Related to Enrollments in Liberal Arts Courses?

American community colleges enroll 5.1 million students and award 450,000 associate's degrees each year. Clearly, most students leave without completing degree requirements. Some obtain occupational certificates, many transfer to other institutions, and many more follow other pursuits for awhile, displaying the intermittent attendance pattern that Adelman (1992) documents.

Even so, how much do graduation requirements relate to course enrollments? To test this question, the catalogs for 40 colleges in the sample were reviewed to determine curriculum requirements for the associate's degree. Some slight differences were found among requirements for the various types of associate's degrees (arts, science, applied science, etc.), but for the most part, the basic course patterns were similar. The percentage of community colleges requiring specific subject areas is shown in Table 6, along with the number of students taking classes in those areas.

Except for ethnic studies and its manifestation in courses in the history, sociology, and literature of special groups (offered by fewer than half the colleges), all the disciplines required for graduation are present at nearly all the colleges. This is no surprise, since these often-called "general education" courses have represented the curricular canon from secondary schools through the lower division of universities since early in the century. Computer literacy, a subject area that has grown rapidly in the past 20 years, and the even more recent ethnic studies, are the only contemporary additions. They are required by 11 percent and 8 percent of the colleges, respectively, and their relatively low enrollment figures reflect the lack of degree requirements in these areas.

▼

TABLE 6

Subject	Sub-Subject	Colleges Requiring One or More Courses for Graduation	Number of Students Nationally
English Composition		97%	1,317,400
Humanities (excluding ESL)		88%	704,800
Math		97%	1,064,100
Physical Education/Health		74%	NA
	Computer Literacy	11%	147,200
	Ethnic Studies (separately organized programs only)	8%	13,400
Science		94%	768,400
Social Studies		98%	N/A
	U.S. Government	26%	249,000
	U.S. History	34%	396,500

THE NON-LIBERAL ARTS

That the non-liberal arts have flourished in recent years is due to a variety of factors. As the CSCC Non-Liberal Arts Study demonstrates, a high percentage of non-liberal arts courses in many subject areas transfer directly to four-year institutions. This factor may be paramount in underscoring the "validity" of the non-liberal arts, since students are not foreclosing their options for further studies through the pursuit of study of the non-liberal arts. A second factor is that of prestige. As many professions require increased years of study as a condition for employment, the status of those professions rises accordingly. Non-liberal arts education therefore need not be viewed as education leading away from the baccalaureate degree.

Methodology

Two major objectives drove the Non-Liberal Arts Study. The first was to quantify the proportion of the curriculum devoted to the non-liberal arts, while the second was to discover the percentage of non-liberal arts courses that transfer to four-year institutions. Because the Non-Liberal Arts Study was the first of its kind conducted by CSCC, a taxonomy had to be developed. Based largely on the "Taxonomy of Academic and Vocational Courses for Less-than-4-Year Postsecondary Institutions" (Grubb, June 1987), a CSCC taxonomy was developed for the non-liberal arts courses using ten major discipline areas: Agriculture Technology, Business and Office, Education, Engineering Technology, Health, Home Economics, Marketing, Technical Education, Trade and Industry, and Other.

The same 164 community colleges that participated in the 1991 National Liberal Arts Study also participated in the Non-Liberal Arts Study. Once the taxonomy was developed, CSCC staff coded non-liberal arts courses using the same course schedules that had provided the data for the liberal arts study. Thus, the ratio of liberal arts to non-liberal arts portions of the curriculum could be established. All policies and constraints used in coding the 1991 liberal arts study applied to the subsequent Non-Liberal Arts Study. The same criteria for identifying remedial, standard and advanced courses applied, as did the same injunction against coding classes without definite times and meeting places.

Since the Non-Liberal Arts Study is a baseline study, the finer gradations of subject categories were not established as they were in the liberal arts studies. Some explanation is necessary, therefore, concerning specific subject areas included under each of the ten broad discipline areas.

THE NON-LIBERAL ARTS TAXONOMY

As stated above, the CSCC non-liberal arts taxonomy divided this portion of the curriculum into ten major discipline areas. Some areas of potential overlap between the liberal arts and the non-liberal arts did occur, however, as in the areas of agriculture and engineering. For these areas, staff developed strict guidelines to differentiate between potential areas of conflict. An example of a liberal arts agriculture course is "Plant Science," while a non-liberal arts agriculture technology course might be entitled "Agribusiness and Crop Production."

The major categories and specific course areas for the non-liberal arts are as follows:

Agriculture
Horticulture, agribusiness and crop production, forest products and other agriculture products, agricultural sciences, renewable natural resources, animal health technology, nursery operation

Business and Office
Accounting, taxes, business and management, secretarial and related (filing, typing, shorthand, 10-key calculations), labor law, will, trusts and estate planning, legal assistant, other business and office, airline ticketing and reservations

Education
Early childhood education, physical education instructor courses, coaching, children's literature, nanny courses, math, music, or art for teachers, courses for future instructors of the emotionally and mentally challenged

Engineering Technologies
(Most of this category was coded under the Spring 1991 Liberal Arts Study.) Engineering courses that were too occupationally oriented to be coded in the liberal arts were coded under non-liberal arts. These non-liberal arts engineering courses focus on engineering principles such as "Analog or Digital Fundamentals," "AC/DC Current," or "Ohm's Law," as well as more practical subject matter. Examples: "Avionics" (theory of flight and practical aspects of flying an airplane) or "Industrial Electricity."

Health
Nursing, health sciences, allied health, CPR, emergency technician, nutrition, marriage and family counseling courses, drug counseling, working with juvenile delinquents, dental assisting, corrective and rehabilitative physical education or other physical therapy for the physically challenged

Home Economics
Home economics, sewing, cooking, preserving foods, home interior decorating, all home economics courses which are not focused on trade and industry and which are intended for one's personal use at home

Marketing and Distribution
Real estate, fashion merchandising, salesmanship, auctioneering, advertising design layout, purchasing textiles

Personal Skills and Avocational Courses
Physical education, freshman orientation, introduction to the library, parenting, fashion color analysis, career and life planning, self-appraisal courses

Technical Education
Computer software applications (word processing, spreadsheets, database programs, networking, desktop publishing—all *non-programming* computer applications); protective services including fire, police and law enforcement, lifeguard, and military science courses; communication technologies including journalism, TV, newspaper reporting, radio announcing, photo journalism, and other mass media courses, graphics and offset printing; commercial photography

Trade and Industry
Construction; automotive; aviation engineering (concerning the manufacture of airplanes); surveying; drafting including CAD/CAM; other mechanics and repairers; welding and precision metal; other precision production; transport and materials moving; consumer/personal/miscellaneous services including cosmetology, upholstery; hospitality industry courses including culinary arts and wines; pattern design and many apparel construction courses; travel and tourist agent

Other
Social services program training courses, library cataloging procedures

How Much of the Community College Curriculum Is Accounted for by the Non-Liberal Arts?

The Non-Liberal Arts Study revealed that slightly more than 80 percent of the for-credit non-liberal arts curriculum was accounted for by only four discipline areas: Business and Office, Personal Skills and Avocational Courses, Technical Education, and Trade and Industry. (See Table 7.) Physical education accounted for more than 90 percent of the courses coded under Personal Skills, while computer software applications was the largest category of courses coded under Technical Education.

Five discipline areas accounted for only a small portion of the non-liberal arts credit curriculum, accounting altogether for just under 10 percent. Few courses were coded in the areas of Agriculture (1.2 percent), Education (2.5 percent), Engineering Technology (.2 percent), Home Economics (.2 percent), Marketing and Distribution (3.4 percent), and Other (.2 percent). Several of these categories deserve some explanation.

▼

TABLE 7

Number of Sections and Percentage of Non-Liberal Arts Courses Offered

Discipline	Number of Sections Offered	Percentage of Non-Liberal Arts Sections	Percentage of Total Credit Sections
Agriculture	529	1.2	.5
Business and Office	11,156	24.6	10.7
Education	1,147	2.5	1.1
Engineering Technologies	889	2.0	.9
Health	4,641	10.2	4.4
Home Economics	106	.2	.1
Marketing & Distribution	1,523	3.4	1.5
Personal Skills & Avocational Courses	8,643	19.1	8.3
Technical Education	8,229	18.1	7.9
Trade and Industry	8,420	18.6	8.1
Other	77	.2	.1
TOTALS	**45,360**	**100.0**	**43.4**

For the Agriculture and Engineering categories, courses were coded under both liberal arts and non-liberal arts. Courses that were more theoretically based and less oriented toward a specific occupation were considered liberal arts courses. In the liberal arts study, both the Agriculture and Engineering categories showed precipitous declines between 1986 and 1991, but the reasons for their declines are different. In 1986, agriculture courses accounted for 1.2 percent of the total liberal arts curriculum, while in 1991, the percentage fell to .1 percent. But when *all* agriculture courses are tallied in both liberal arts and non-liberal arts categories, they still account for only a small proportion of the total 1991 curriculum (.6 percent). At least a partial explanation for the decline is sampling error. In national samples of 10 percent to 15 percent of all community colleges, sampling error has an exaggerated effect for subject areas in which few sections are offered. For example, only 18 of the 164 colleges in our sample offered *any* liberal arts sections of agriculture in 1991. In all, 75 sections of agriculture were found among the 59,205 liberal arts sections that were tallied. These figures are too small to be reliable.

A decline in the number of engineering courses was also evident; in 1986, engineering courses accounted for 5 percent of the liberal arts curriculum; in 1991, that figure was only 2.5 percent. The proportion of engineering courses falls even further when it is considered as part of the total curriculum (2.3 percent), rather than as part of the liberal arts curriculum alone. At least part of the decline in the number of engineering courses may be attributed to two kinds of "category shifts" in the coding of these courses. First, computerized graphics courses often are offered at today's community colleges by several departments and may appear as "Visual Arts" in fine and performing arts departments, as well as in engineering departments. College catalogs do not always clearly differentiate which type of graphics course is being described. The coding of graphics courses, therefore, may have "shifted" from one category to the next between the 1986 and 1991 liberal arts studies, thereby affecting the overall Engineering category tallies. Also, all CAD/CAM courses were considered computer software applications courses, coded under Technical Education. This may have been a second factor contributing to the low percentage of courses coded under Engineering.

Another non-liberal arts area that requires some explanation is Home Economics. Very few "true" home economics courses were found, since many sewing and tailoring, food preparation and food preservation, and interior decorating courses were oriented more toward training students in consumer service areas than toward providing skills to be used in the home. Only courses in baking, cooking, and sewing for one's personal use *at home* were included under Home Economics. Classes such as pattern design, fabrics, wines, culinary arts, and refrigeration for restaurants often were clearly Trade and Industry classes, as judged by both course titles and course descriptions. Nutrition classes often were coded under Health, while parenting classes were tallied under Personal

Skills and Avocational Courses. Using this narrowly defined taxonomy, the category of Home Economics all but disappeared, accounting for only .2 percent of the non-liberal arts curriculum.

The last category requiring explanation is Education. This category included courses for those intending to teach. The great majority of classes coded under Education were early childhood education courses, while a few were fitness instructor training courses.

What Is the Ratio of Liberal Arts to Non-Liberal Arts Courses?

For the spring 1991 National Liberal Arts Curriculum Study, 59,205 liberal arts course sections were tallied by CSCC staff, while in the subsequent study of the non-liberal arts, 45,360 sections were tallied. A total of 104,565 course sections were coded in the two studies. A 56.5 percent to 43.4 percent ratio of liberal arts to non-liberal arts courses resulted.

A possible explanation for the lower percentage occupied by the non-liberal arts stems from the way in which courses were coded. As noted earlier (in the Methodology section), a definite time and meeting place had to be listed in order for a course to be coded. Thus, laboratory courses, clinicals, practicums, field experience, independent study, and self-paced or modular classes were not included in the tallies for either the liberal arts or the non-liberal arts. Since laboratory classes occur with greater frequency in many non-liberal arts subject areas, their omission may account at least partially for the lower proportion of non-liberal arts courses. Laboratory classes are popular especially in many nursing and allied health programs, in technical education program classes (such as computer literacy and data processing), and in trade and industry subject areas (such as auto mechanics and cosmetology). In the liberal arts, however, fewer laboratory classes are offered. The largest liberal arts subject area offering laboratory classes is most likely music, where "applied" music classes (often private lessons) were considered laboratory classes and therefore were not coded. Some laboratory classes are also offered in the hard sciences and in foreign language classes, though separate foreign language laboratory classes have declined in popularity and, overall, few sections are offered.

What Does the Total Curriculum Look Like?

Table 8 presents the percentage breakdown of the total curriculum by major subject area, providing a description of the percentages accounted for by the six liberal arts and the ten non-liberal arts discipline areas that account for the total credit curriculum:

▼

TABLE 8

Number of Sections and Percentage of Total Curriculum, by Major Discipline Areas

Discipline	Number of Sections	Percentage of Total Curriculum
Agriculture (Non-Liberal Arts)	529	.51
Business & Office	11,156	10.67
Education	1,147	1.10
Engineering Technologies	889	.85
English	13,327	12.75
Fine & Performing Arts	5,671	5.42
Health	4,641	4.44
Home Economics	106	.10
Humanities	14,034	13.42
Marketing	1,523	1.46
Math and Computer Sciences	11,176	10.69
Personal Skills & Avocational Courses	8,643	8.27
Sciences	8,031	7.68
Social Sciences	6,966	6.66
Technical Education	8,229	7.87
Trade & Industry	8,420	8.05
Other	77	.07
TOTAL	104,565	100.0

What Percentage of Non-Liberal Arts Courses Transfers?

As a second component of the Non-Liberal Arts Study, course transferability rates[1] were calculated for the states of California, Illinois, and Texas. Because any course at a community college is likely to be accepted for transfer credit by some in-state, four-year institution, transferability rates were calculated from community colleges to two specific types of four-year institutions—a "flagship" research university and a comprehensive college or university.[2]

In order to create a uniform basis of comparison between states, "transferability" was defined as course-to-course transfer equivalencies, rather than as "program" or "block" transferability of courses between institutions. Transferrable courses were those which carried credit to four-year institutions in one of four categories: (1) general education credit; (2) general elective credit; (3) specific course credit in a major field; or (4) major field elective credit. The goal was to discover which courses a student could count on transferring to four-year institutions—even if that student had only taken a few community college courses.

Not all officials in the different states, however, think of transfer in terms of specific "course" transfer—that is, the transfer of a specific community college course for either general or elective credit at a particular four-year college. An example may illustrate the differences. Officials in states such as Florida, for example, prefer to consider transfer in terms of "degree completer" patterns. Community college students are strongly encouraged to complete an associate's degree (or 60 credits in a specified program) before transferring with junior-level standing to a four-year institution. Therefore, obtaining specific course transfer guides for Florida community colleges would be problematic.

Since the method for determining course transferability differs among states, a "generic" methodology for collecting this data for the three states involved in the study was not possible. In California, course transferability was recorded explicitly in the college course schedules; in Texas, articulation officers at the community colleges provided the data; in Illinois, transfer guides were obtained from the state postsecondary agency and were used to calculate percentages of courses in each of the ten major non-liberal arts areas that transfer to four-year institutions. The results for the states of California, Texas, and Illinois are presented below.

Which Non-Liberal Arts Courses Transfer in California?

The system for assessing course transferability in California was fairly simple. State mandate obliges community colleges to list in their catalogs or schedules which courses will transfer to one of the state's two public higher education systems—the University of California (UC) system (with nine campuses) and the California State University (CSU) system (with 20 campuses). Some community college schedules and catalogs list which individual campuses within the systems will accept a specific course for transfer credit, while others merely list a course as acceptable for transfer somewhere within the UC or CSU systems. Thus, determining transferability was easy, since catalogs and schedules clearly designated individual course transferability.

▼

TABLE 9

Transferability Percentages of California Non-Liberal Arts Courses (N=30)

Transfer Subject Area	CSU	UC
Agriculture	64.5	21.0
Business & Office	61.0	23.0
Education	70.6	5.6
Engineering Technology	62.6	5.7
Health	54.3	16.3
Home Economics	47.1	12.9
Marketing & Distribution	70.3	1.6
Personal Skills & Avocational Courses	88.0	76.7
Technical Education	52.8	11.0
Trade & Industry	35.7	3.7
Other	94.1	35.3
Overall Transferability	61.7	28.9

Thirty California community colleges participated in this phase of the Non-Liberal Arts Study. Not surprisingly, the findings for California indicated very different transferability rates from the community colleges to the UC-system research universities and to the state comprehensive universities (the CSU system). Within the UC system, only courses within the area of Personal Skills and Avocational Courses transferred in high numbers (76.7 percent), largely because of the extremely high percentage of Physical Education courses which transferred. In fact, the Personal Skills subject area accounted for 26.5 percent of the non-liberal arts curriculum for California, a full 7.4 percentage points higher than the national percentage of 19.1 percent.

Transferability percentages to the UC system fell markedly after the 76.7 percent high for Personal Skills courses. The next highest transferability rate for California community colleges was for courses categorized "Other" (35.3 percent). The small percentage of total California courses coded under this category, 17 courses out of 12,632 (.1 percent), however, make this category too small to be reliable. All other subject areas yielded transferability percentages at or below 23 percent.

Within the state comprehensive university system, however, 61.7 percent of all community college courses transferred, with a range from 88 percent in Personal Skills courses to 35.7 percent in Trade and Industry courses. In both the CSU and UC systems, Trade and Industry courses held among the lowest rankings in percentage of transferrable courses. If Trade and Industry courses were the only non-liberal arts courses considered, then some merit might exist in the charge that the transfer function denies students who take non-liberal arts courses access to four-year degrees. But taken as a whole, the non-liberal arts show remarkable transferability to the state university system and challenge the notion that students who take courses in these fields are "cooled out" of baccalaureate degree programs. Nevertheless, there may be some truth in the proposition that a status difference does exist among the various non-liberal arts subjects. For students enrolled in Trade and Industry programs, for example, baccalaureate degrees certainly appear less accessible.

Which Non-Liberal Arts Courses Transfer in Texas?

Eleven Texas community colleges participated in the transferability component of the non-liberal arts study. Transfer articulation coordinators at these colleges provided written transfer agreements designating courses as transferrable or non-transferrable to the flagship research institution in Texas, the University of Texas at Austin, and to one of two state comprehensive universities, Stephen F. Austin State or Southwest Texas State University.

▼

TABLE 10

Transferability Percentages of Texas Non-Liberal Arts Courses (N=11)

Transfer Subject Area	Research University	State Comprehensive University
Agriculture	16.0	28.0
Business & Office	30.3	41.0
Education	17.4	50.0
Engineering Technology	0	0
Health	6.8	7.4
Home Economics	NA*	NA*
Marketing & Distribution	39.4	43.9
Personal Skills & Avocational Courses	99.8	100.0
Technical Education	56.2	71.1
Trade & Industry	5.8	5.8
Other	NA	NA
Overall Transferability	35.3	41.6

*The sections were coded to provide reliable data.

The results for Texas are surprising in that the overall transferability rate, as well as rates for a number of individual subject areas, are quite close. A mere 5.3 percentage points differentiate overall transferability rates between the state's flagship research institution and two state comprehensive universities. This pattern is quite different from that of California.

In Texas, each community college has separate transfer agreements with each four-year institution (unlike California, which lists *systemwide* transferability). Still, this difference does not account for the discrepancy between the California and the Texas data.

Further study of transferability in Texas yielded an interesting case study in which data was obtained on transferability percentages from one community college to 15 four-year institutions in the state, two of them private. (See Table 11.) The statistics are for courses offered (not sections) and are not directly comparable to other statistics in this study. The percentages do illustrate, however, differences among institutions that accept courses from one community college.

▼

TABLE 11

Percentages of Courses That Transfer from Lee College

	All Courses Offered	Non-Liberal Arts Courses
Public Four-Year Institution		
East Texas State University	92.9	92.2
Lamar University	41.6	21.2
Sam Houston State University	45.7	27.5
Southwest Texas State University	97.4	97.3
Stephen F. Austin State University	46.9	28.9
Texas A & M University	36.9	16.2
Texas Tech	14.2	5.5
Texas Woman's University	62.9	50.8
University of Houston-Clear Lake	28.8	15.8
University of Houston-Downtown	52.8	33.8
University of Houston-Main	93.3	93.5
University of North Texas	73.2	64.4
University of Texas-Austin	40.6	21.6
Private Four-Year Institutions		
Baylor University	12.7	2.5
Houston Baptist University	11.6	6.5

Several findings deserve comment. First, the two private universities have much lower transferability rates than all but one of the public institutions. Second, the wide disparity between transferability rates to the four-year institutions (from a high of 97.4 percent for all courses offered to a low of 14.2 percent) may be accounted for by two factors influencing articulation agreements: the proximity between the two- and four-year institutions and the ability of the community college articulation officer to build a relationship with a university's transfer coordinator. Lee College (in Baytown) is a considerable distance from the four-year institution where it has its lowest transferability rate (14.2 percent) at Texas Tech, in Lubbock). And third, the differences between transferability of all courses offered and just the non-liberal arts courses range from 20.7 percent to .4 percent. In one instance, the non-liberal arts actually transfer at a slightly higher percentage than all courses offered (93.5 percent to 93.3 percent at the University of Houston-Main). Overall, the differences between transferability rates of all courses offered and those of non-liberal arts courses only do not appear to be significant.

Which Non-Liberal Arts Courses Transfer in Illinois?

Three Illinois community colleges provided data on non-liberal arts transferability to Illinois State University and to the state's flagship research institution, the University of Illinois at Urbana-Champaign. Transfer guides were obtained from the Illinois Community College Board and were used to calculate transferability percentages. The findings reflect California's pattern of much higher transferabilty percentages to the state university than to the four-year research institution. (See Table 12.)

TABLE 12

Transferability Rates of Illinois Community Colleges (N=3)

Community College	Illinois State University	University of Illinois–Urbana-Champaign
Black Hawk	79.0	79.0
Triton	79.2	79.2
Wilbur Wright	92.7	92.7

The degree to which the various non-liberal arts subject areas transfer also follows a pattern similar to that of California, although the pattern in Illinois is more pronounced. The University of Illinois research university showed higher selectivity than the University of California system in accepting non-liberal arts courses for credit (15.9 percent and 28.9 percent, respectively), and Illinois State University displayed a considerably higher transferability rate for non-liberal arts courses than did the California State University system (80.4 percent and 61.7 percent, respectively). Two subject areas in Illinois that yielded different results, however, were the high percentage of Trade and Industry courses that transferred to Illinois State University (86.9 percent) compared to the percentage that transferred to the California State University system (35.7 percent) and the comparatively low transferability rate of Personal Skills courses (largely physical education courses) to the University of Illinois (49.5 percent). For several subject areas, data was too sparse to report. Also, data for Illinois should be considered preliminary, since only three community colleges furnished complete data for analysis.

TABLE 13

Non-Liberal Arts Transferability Rates in Illinois Community Colleges (N=3)

Transfer Subject Area	Illinois State University	University of Illinois–Urbana-Champaign
Agriculture	100.0	0
Business & Office	78.7	30.9
Education	92.9	17.9
Engineering Technology	100.0	0
Health	29.8	.9
Home Economics	NA	NA
Marketing & Distribution	91.5	0
Personal Skills & Avocational Courses	89.2	49.5
Technical Education	97.2	7.3
Trade & Industry	86.9	4.8
Other	NA	NA
Overall Transferability	80.4	15.9

What General Patterns Are Discernible from the Transferability Data? Similarities exist in the overall transferability patterns for Illinois and California, although substantial differences also emerge between the two states in transferability percentages for specific disciplines. The following general observations are possible: (1) research universities are considerably more selective in their acceptance of non-liberal arts courses for transfer credit; (2) personal skills and avocational courses tend to transfer at a high rate, largely because of physical education courses; (3) trade and industry courses do not transfer at a high rate, except to Illinois State University; (4) health occupations courses also tend to have comparatively low transferability rates.

The overall pattern for Texas, however, is considerably different than for the other two states. Both Texas's state universities and its flagship research institution seem to accept non-liberal arts courses for transfer at much more similar rates (41.6 percent and 35.3 percent, respectively). This difference is perhaps best revealed by the following figures, which compare transferability data from Texas and California.

FIGURE 1

Texas Transfers: Non-Liberal Arts Project, 1992

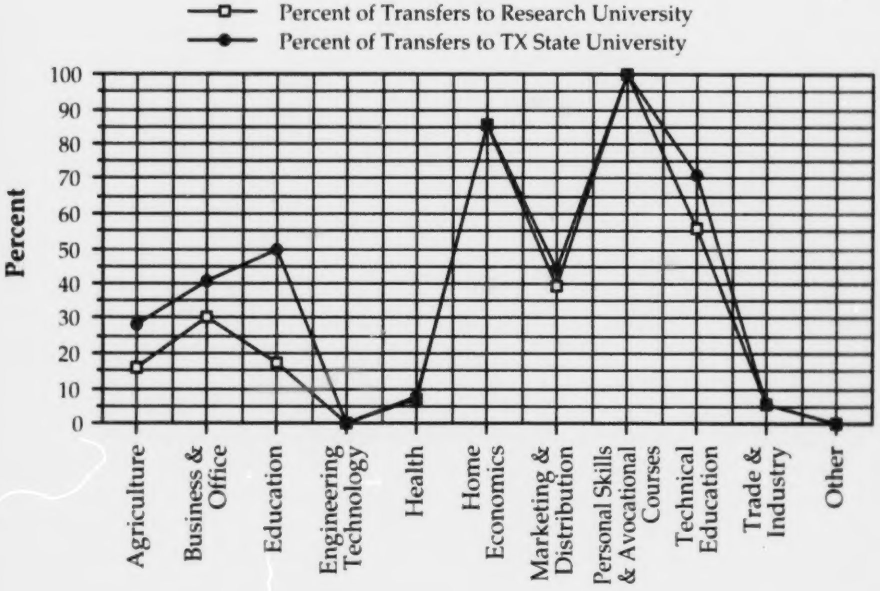
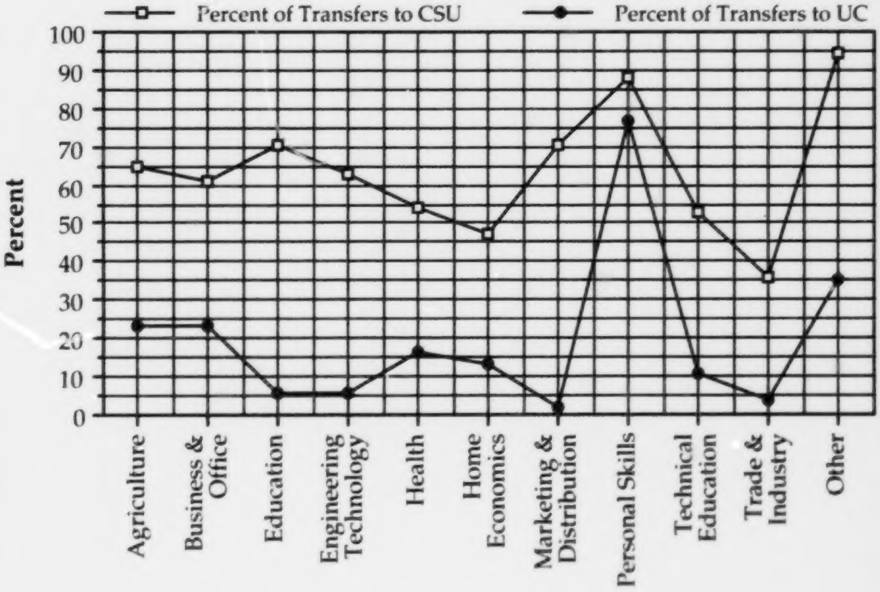


FIGURE 2

California Transfers: Non-Liberal Arts Project, 1992



SUMMARY

This paper has reported the findings of the most recent of a series of studies of the liberal arts curriculum at American community colleges. Findings were that overall, the liberal arts have expanded from 52 percent of the total curriculum in 1986 to 56 percent in 1991. This probably resulted less from the introduction of new courses or course requirements than from an increase in the proportion of students pursuing the first two years of baccalaureate study. The enrollment figures show the continued dominance of traditional general education courses: English composition, introductory math, psychology, history, and political science. The most notable shift in the curriculum was in foreign languages, where, fueled by a notable jump in ESL enrollments and in the number of colleges offering ESL, the foreign languages share rose from 5 to 8.5 percent of all liberal arts classes.

Relationships between the liberal arts curriculum and college size, location, minority student enrollment, transfer rate, and graduation requirements were analyzed. Colleges in urban areas were found to offer higher percentages of remedial courses, thereby confirming a generally accepted notion. College size related to course patterns only in the provision of specialized classes: the larger the college, the more likely that a class in, for example, dance or cultural geography would be found. (A similar relationship appeared in earlier studies.) A community college must enroll quite a large number of students in order to support specialized classes in many fields.

The finding that a college's transfer rate is positively related to the percentage of liberal arts courses it offers was no surprise; the liberal arts are basic to traditional baccalaureate studies. But there was no relation between the percentage of advanced courses offered and the college's transfer rate. One explanation may be that as CSCC found in a parallel study of transfer rates, the "median student" transfers after completing approximately thirty units. Thus, half of transferring students do not stay at the community college long enough to enroll in advanced or sophomore-level courses.

The finding that the proportion of the liberal arts curriculum is greater at colleges that are above the mean in terms of the percentage of minority students enrolled refutes the widely held contention that the minorities are tracked into vocational programs—that is, unless those programs require their matriculants to take large numbers of liberal arts classes (nearly all of which carry university-transfer credit). The lack of a significant relationship between a college's minority student ratio and the percentage of its curriculum devoted to remedial, introductory, or advanced courses also suggests that the reasons for the minority students' lower transfer rate cannot be attributed to the curricula the colleges provide.

For the non-liberal arts, general findings indicate that courses in trade and industry do not transfer at high percentages, but personal skills and avocational courses do (largely because of physical education courses). The second major finding is that research universities are more selective in terms of the non-liberal arts courses they accept for transfer. This is especially true in California and Illinois, but less so in Texas. The third finding concerns the overall transferability of non-liberal arts courses. Since most non-liberal arts courses do transfer (except for trade and industry courses), the concept of "terminal education" should be laid to rest.

The non-liberal arts data will be analyzed further and compared with other data recently compiled by CSCC. One set of tabulations will relate the non-liberal arts data to the college student transfer rates. Questions to be addressed in further analyses include whether community colleges with differing patterns of ethnicity and student transfer rates display different non-liberal arts curricular patterns. Further analyses will provide a more complete picture of how the total curriculum functions at American community colleges.

ENDNOTES

1 Throughout this paper *transferability* will refer to course transferability from community colleges to four-year institutions while *transfer* will refer to student transfers.

2 Research Universities I and Comprehensive Universities and Colleges I were defined in this study using the definitions in the Carnegie Foundation's *A Classification of Institutions of Higher Education* (1987), p. 7.

REFERENCES

Adelman, C. (February 1992). *The Way We Are: The Community College as American Thermometer.* Washington, DC: U.S. Government Printing Office.

Astin, A. (1977). *Four Critical Years.* San Francisco: Jossey-Bass Inc.

Brint, S. & Karabel, J. (1989). *The Diverted Dream: Community Colleges and the Promise of Educational Opportunity in America, 1900–1985.* New York: Oxford University Press.

Cohen, A. M. & Brawer, F. B. (1987). *The Collegiate Function of Community Colleges.* San Francisco: Jossey-Bass Inc.

Cohen, A. M. & Brawer, F. B. (1989). *The American Community College* (2nd Edition). San Francisco: Jossey-Bass Inc.

Grubb, Norton. (June 1987). "The Postsecondary Education of 1972 Seniors Completing Vocational A.A. Degrees and Certificates." U.S. Department of Education: MPR Associates for the Center for Education Statistics. LSB-87-06-26.

Grubb, N. March/April 1991. "The Decline of Community College Transfer Rates: Evidence from National Longitudinal Surveys." *Journal of Higher Education*, 62(2): 194–222.

Levine, A. & Cureton, J. (January/February 1992). "The Quiet Revolution: Eleven Facts About Multiculturalism and the Curriculum." *Change* 24(1): 25–29.

Pincus, F. & Archer, E. (1989). *Bridges to Opportunity: Are Community Colleges Meeting the Needs of Minority Students?* New York: Academy for Educational Development and College Entrance Examination Board.

Richardson, R. & Bender, L. (1985). *Students in Urban Settings: Achieving the Baccalaureate Degree.* Washington, DC: Association for the Study of Higher Education.

THE COMMUNITY COLLEGE CONTRIBUTION TO THE EDUCATION OF BACHELOR'S DEGREE GRADUATES:

A Case Study in Virginia

JAMES C. PALMER, ILLINOIS STATE UNIVERSITY*
MARILYN B. PUGH, PRINCE GEORGE'S COMMUNITY COLLEGE

By tradition and by law, community colleges share responsibility for baccalaureate education with state colleges and universities. Vested with the authority to offer curricula that are equivalent to the lower-division programs at baccalaureate-granting institutions, community colleges are viewed by policy makers as a means of keeping the higher education system accessible to those who cannot begin their postsecondary studies elsewhere. Hence, community colleges are commonly thought of as providers of "the first two years of college." State transfer and articulation policies (where they exist) seek to assure the connection between community colleges and the upper division by guaranteeing university admission to community college students who have either earned an associate's degree or completed a prescribed sequence of lower-division courses.

---

* This study was conducted during 1991–92, when the senior author was acting director of the Center for Community College Education (VA). Ms. Pugh, a faculty member at Prince George's Community College (MD), is a doctoral candidate at George Mason University.

How and to what degree have students utilized community colleges as a stepping stone to the bachelor's degree? Few studies analyze the extent to which assumptions about the use of community colleges match actual student behavior. Those that do suggest that while many on the path to the baccalaureate attend community colleges, they often do not follow the prescribed pattern of two years at the community college followed by two years at the university.

Adelman (1992) analyzed the college transcripts of a national sample of students who graduated from high school in 1972, finding that over the 12-year period following graduation, approximately 17 percent of those who earned a bachelor's degree had earned at least 11 community college credits. His data also show that about half (51 percent) of those baccalaureate recipients who had accumulated 11 or more community college credits came to the university with an associate's degree. The disparate use of the community college by these and other students led him to conclude that the institution often served "occasional" or ad hoc educational needs, rather than leading individuals through complete curricula.

These disparate attendance patterns have been observed in at least two state studies. The Washington State Board for Community College Education (1989) surveyed a random sample of students who had received bachelor's degrees from the state's four-year institutions in spring 1988. The study noted that approximately one out of three students had transferred at least some credit from a community college and that the proportion of community college transfer students among graduates varied by type of institution: 22 percent at private colleges; 29 percent at the University of Washington and Washington State University; and 48 percent at the state's regional colleges. In addition, the study found that the community college contribution to baccalaureate education varied; 60 percent of the community college transfer students had earned an associate's degree, but the remaining 40 percent had earned any number of community college credits without obtaining a credential prior to transfer.

In Nevada, researchers examining the transcripts of 2,000 students who graduated in 1986 and 1989 from the University of Nevada at Reno (UNR) and the University of Nevada at Las Vegas (UNLV) found that 25 percent of the UNR graduates and 18 percent of the UNLV graduates had earned at least seven or more transferable credits at one or more Nevada community colleges (University of Nevada System Articulation Board, 1990). The study also determined that there was little difference between native students and transfer students in terms of the university colleges in which they enrolled and from which they graduated, thus suggesting that baccalaureate graduates who transfer from community colleges tend to receive degrees in the same majors native students do. And while the report provides no data on patterns of institutional attendance, the authors note that those graduates who had used community colleges did so at any point during their undergraduate careers and transferred as freshmen, sophomores, or juniors; some started at a four-year institution and either detoured to a community college or enrolled concurrently at both a two-year and a four-year college.

These retrospective studies of the academic records of bachelor's degree recipients provide useful indicators of the proportion of baccalaureate recipients who attend community colleges at some time before earning their degrees. The question of how community colleges are used as stepping stones to the baccalaureate, however, remains open. Some students clearly follow the prescribed two-year path, earning the associate's degree before transferring; other do not. For state policy makers who would assess the role their community colleges play in the education of those who receive bachelor's degrees, other questions remain:

- What is the range of community college credits earned by baccalaureate graduates during their undergraduate years, and how many of these community college credits are accepted for transfer by the baccalaureate-granting institutions?

- What are the patterns of community college usage by baccalaureate degree recipients? For example, of those graduates who attended community colleges along the way to their baccalaureates, what percent pursued a traditional, linear path by starting at a community college and then transferring to a four-year college? What percentage started at a four-year college, transferred to a community college, and then transferred back to a four-year college? Are there other patterns?

- What subjects do students study at the community college along the way to the baccalaureate? Of the community college credits earned by

> baccalaureate graduates, what percentage represents courses in the majors for which they eventually receive degrees? For example, if a student's transcript indicates that he or she earned a bachelor's degree in economics, what percentage of his or her community college credits were earned for economics classes?

Utilizing undergraduate transcripts as a data source, the study described in this essay attempts to answer these questions for a sample of baccalaureate graduates from six Virginia public colleges and universities. Though the findings cannot be generalized to the national population of baccalaureate graduates, or even to the population of graduates from Virginia, they illustrate how students can make use of community colleges in ways that are not often anticipated by transfer and articulation policies.

METHOD

During the study, the authors analyzed the undergraduate transcripts of 1,731 baccalaureate graduates from six Virginia public higher education institutions, which, according to estimates of the State Council of Higher Education in Virginia (McCartan, 1990), receive a large proportion of their transfer students from the Virginia Community College System.[1] The randomly selected graduates represent a 15-percent sample of the students who received their bachelor's degrees between summer 1989 and spring 1990. Though they are not necessarily representative of the graduates of all public four-year colleges and universities in Virginia, they do represent colleges from various geographical regions in the state. Of the six institutions, two are located in the state's rural, western section: Radford University (Radford, VA), with a full-time equivalent (FTE) enrollment of 8,624 students, and Virginia Polytechnic Institute and State University (Blacksburg, VA), with an FTE enrollment of 26,079 students. Two others are located in the coastal tidewater region: Christopher Newport College (Newport News, VA), with an FTE enrollment of 3,696, and Old Dominion University (Norfolk, VA) with an FTE enrollment of 13,635. A fifth institution, George Mason University (Fairfax, VA), lies in the Washington DC metropolitan area and has an FTE enrollment of 13,402. Finally, Virginia Commonwealth University (Richmond, VA), located in the state's central region, has an FTE enrollment of 17,156.[2]

The study began in summer 1991, when the presidents of each of the six institutions agreed to participate in the project and to assign a staff member who would select a 15-percent random sample of the 1989–90 baccalaureate graduates, secure complete copies of the undergraduate transcripts for those students (including transcripts from other institutions attended), and send those copies to the Center for Community College Education after deleting names, social security numbers, dates of birth, and other information that could identify the graduates. Three methods were used to draw the sample: two colleges generated lists of the graduates' social security numbers and selected every nth student for inclusion in the study; three colleges used computer-based statistics packages to generate a random selection of students; and one college selected the sample by creating a random list of graduates (ordered according to the last three digits of the students' social security numbers) and using the first 15 percent that appeared on the list. The Center for Community College Education agreed to report findings in the aggregate rather than for each college and to destroy the transcripts once they were analyzed.

The center used coding sheets to record the academic histories represented in each transcript. The purpose of the coding was not to generate a computerized version of the transcripts. Rather, selected data were drawn from the transcripts in an attempt to determine the academic majors of the graduates; the years of their initial entries into higher education; the number, types, and sequence of higher education institutions attended along the way to the baccalaureate; the number of semester hours earned at each college attended; the number of community college semester hours accepted for transfer by the university granting the bachelor's degree; and the distribution by subject area of semester hours completed at community colleges. Several authorities were used during the coding. The center recorded credits earned by the students at the various colleges they attended in semester hours; when transcripts listed credits as quarter hours, they were converted to semester hours following guidelines outlined by the American Association of Collegiate Registrars and Admissions Officers (1980).[3] *Accredited Institutions of Postsecondary Education* (Harris, 1991), published by the American Council on Education for the Council on Postsecondary Accreditation, was used to classify institutions that appeared on the students' transcripts; those colleges listed as public two-year institutions were classified as community colleges. The graduates' baccalaureate majors were classified by subject according to the U.S. Department of Education's Classification of Instructional Programs (Malitz, 1987). Finally, courses listed on community college transcripts were classified by subject according to a taxonomy developed by Adelman (1990) to study the college transcripts of those students participating in the U.S. Department of Education's "National Longitudinal Study of the High School Class of 1972."

The study method had its limitations. First, the graduates' educational histories were based solely on the transcript records kept by the institution that awarded the bachelor's degree. It is probable that some of the graduates attended colleges that were not represented in these records; thus, the number of institutions attended by the students may be understated. Second, transcript data were not always accurate or complete. For example, the number of semester hours accepted for transfer by the alma mater was sometimes overstated because quarter hours earned at the community college had not been converted to semester hours. In at least four cases, the number of semester hours earned at community colleges was understated, because the community college transcripts were submitted to the university before the student completed his or her tenure at the community college.[4] (For example, a student enrolled at community college X during the spring may apply to University Y for fall admission; the community college transcript he or she submits to the university may not reflect coursework completed in the spring.) These problems notwithstanding, data on credit earned and transferred were recorded as they were noted on the transcript record. Finally, transcripts were sometimes incomplete or indecipherable. (See Table One.) Of the 1,731 graduates in the sample, the transcript records for 213 (12 percent) fell into this category. In all cases, problems centered on transcripts from institutions from which students transferred credit to the alma mater. These transcripts were sometimes no longer on file; in other instances, transcripts took the form of certificates from foreign institutions that did not list semester hours earned. Thus, the findings reported below are sometimes based on partial data (just as survey data are based on response rates of less than 100 percent).

FINDINGS

For most graduates in the sample (59 percent), the path to the baccalaureate involved moving between two or more institutions over a period of time that often extended beyond the traditional four undergraduate years. (See Tables Two, Three, and Four.) Community colleges figured significantly in this transfer activity; 669 (39 percent) of the 1,731 graduates had earned credit at at least one community college at some point during their undergraduate careers, and 38 percent had transferred at least one semester hour of community college credit to the institution (alma mater) that awarded the baccalaureate. (See Table Five.) Only 15 percent of those who had attended a community college had earned the associate's degree, suggesting that the students had used community colleges for their own purposes rather than having followed institutionally prescribed curricular paths. (See Table Six.) Indeed, further analysis of the transcripts reveals that community colleges served these students primarily as a resource for arts and sciences courses (in fields outside of the students' baccalaureate majors) that could be tapped to any depth and at any time during the undergraduate years.

Semester Hours Credits Earned at Community Colleges

While 39 percent of the graduates had attended at least one community college prior to obtaining their bachelor's degrees, the length of time spent there varied greatly. This is evident in the wide range of community college semester hours (1–151) earned by students. (See Table Seven.) For many graduates, community colleges clearly played a supplementary role by providing opportunities for occasional study to help fill gaps in their academic records. This was especially evident among those who had earned six or fewer community college credits. But for other graduates in the sample, notably those who had earned 61 or more community college credits, these institutions provided more formidable portions of the undergraduate experience (though the mere accumulation of credits says little about the nature of the community college's contribution). Both extremes are at the ends of a continuum of usage marked by extensive variation in exposure to community college education.

Overall, however, community colleges were most frequently used on an occasional basis; most students had earned less than the equivalent of two years of full-time work. The median number of community college credits earned by those graduates who had attended these institutions was only 23, and community college credits accounted for only 23 percent of the total number of semester hours accumulated by these students during the undergraduate years. (See Table Eight.) This composite picture of the graduates' experience suggests that the alma mater served as a type of home base where students completed most degree requirements. Other institutions—two-year and four-year colleges alike—were attended along the way, but they appear to have functioned in most cases as supplements to the alma mater's offerings.

Community College Credits Accepted for Transfer by the Alma Mater

The vast majority of those who had attended a community college applied some, though not necessarily all, of their community college credits toward their bachelor's degrees. (See Table Nine.) Of the transcript records for these graduates, only 16 (2 percent) showed no credit transfer from a community college. Like the number of community college credits earned, the number of community college credits accepted for transfer varied greatly, ranging from one to 110, with a median of 21.

Just as the mere accumulation of credits says little about the graduates' community college experiences (beyond the amount of time spent at the institution), the fact that transcripts from the baccalaureate-granting institutions note the transfer of credit from community colleges says little about the role those credits played in the graduates' undergraduate education. Only one of the six participating universities routinely listed the community college courses for which credit was granted. Two additional institutions listed the courses in some instances but not in others. Transcripts issued by the remaining three colleges simply noted the total number of credits accepted for transfer. Hence, it is difficult to ascertain precisely how the students' community college coursework complemented the coursework they completed at the university.

Sequence of Colleges Attended

Variations among students in the number of credits earned and transferred were matched by variations in the timing of community college attendance. Of those who made use of community colleges, 48 percent started their postsecondary careers at those institutions; 52 percent attended community colleges after beginning postsecondary studies at the alma mater or at other institutions. In some cases, students transferred back and forth from two-year to four-year colleges, suggesting a cyclical movement rather than a linear progression from the lower division to the upper division.

The college-to-college movement of the graduates is illustrated in Table Ten, which distributes the study subjects among 15 patterns of institutional attendance and notes (where appropriate) the range and median number of community college credits earned by students who fell into each pattern.[5] The data lead to at least two observations. First, graduates who had used community colleges earned a wide range of credits at these institutions, regardless of when they attended them. On average, the number of community college semester hours earned by those who began their college careers at two-year institutions (Patterns 2–6) is larger than the number of community college semester hours earned by those who began their postsecondary studies at a four-year college (Patterns 8, 9, and 12). But both categories include students with as few as 11 community college credits and as many as 60 or more. Second, patterns of institutional usage are often unpredictable, apparently driven by student needs and circumstances. For example, Pattern 12 includes numerous permutations of institutional attendance that cannot be neatly categorized or displayed in a table. As an illustration, one student falling into Pattern 12 started postsecondary studies at a public four-year college other than the eventual alma mater, went on to a community college, subsequently enrolled at yet another community college, transferred to an out-of-state, private four-year college, and finally ended up at the institution from which he or she eventually received the bachelor's degree. Another student started at the institution that would eventually be his or her alma mater, subsequently enrolled at a community college, moved on to a public four-year institution, and then returned to his or her alma mater. Still other students in Pattern 12 ended their undergraduate careers at community colleges, presumably taking courses to complete unfinished degree requirements.

Some of this movement probably can be explained by the large military presence in Virginia. Three of the six participating institutions are located near military bases and thus may draw a relatively mobile student body. But whatever the reason, community colleges shared responsibility for the graduates' college educations with many different types of institutions that were used at any point along the path to the baccalaureate.

Coursework Completed at Community Colleges

When the graduates enrolled in community colleges, they tended to use them as sources of liberal arts and sciences courses representing subject areas other than the baccalaureate majors in which they eventually received their degrees. As Table Eleven reveals, 77 percent of the community college coursework completed by the graduates was in English (both composition and literature), mathematics, the social sciences, and other arts and sciences disciplines. In contrast, only 42 percent of the graduates received degrees in arts and sciences majors. (See Table Twelve.) Further analysis of the transcripts (Table Thirteen) shows that of the 20,852 semester hours completed by the graduates at community colleges, only 14 percent represented credits earned for courses that were directly related to the graduates' majors (as in a psychology course completed by a student who eventually received a degree in psychology or a history course completed by a student who majored in history).[6]

Again, it is impossible to know precisely how community college courses were used to fulfill baccalaureate requirements. However, the overall picture that emerges predictably suggests that the community colleges' predominant contribution to the graduates' undergraduate programs was in general education and literacy development, leaving in-depth study of the major to the baccalaureate-granting institutions. Some career-related courses, which are rarely completed by non-majors seeking elective credit, posed notable exceptions. The majority of semester hours earned in engineering, education, allied health, and protective services were completed by students majoring in those areas. But these disciplines account for only six percent of the total number of the semester hours earned by the graduates at community colleges. Despite variations in the amount of time spent at community colleges and in the sequence in which these institutions were used, study of the arts and sciences as a supplement or foundation for study of the major appears to be the common thread that tied together the graduates' community college experiences.

SUMMARY

The baccalaureate graduates represented in this study used community colleges on their own terms, rarely following the institutionally prescribed associate's degree path. The wide variations in the number of credits the graduates earned at community colleges, in the times at which they attended community colleges, and in the ways they combined study at community colleges with study at other institutions suggest that for many of the graduates, community colleges were not providers of curricular paths. Rather, they were providers of course offerings that could be used in any number of ways to fulfill baccalaureate degree requirements. This pattern of usage mirrors the findings of the Nevada study mentioned earlier (University of Nevada System Articulation Board,

1990) and supports Adelman's contention that community colleges serve ad hoc educational needs by accommodating students who come and go as their educational needs dictate (Adelman, 1992, pp. v–vi).

But however varied, the graduate's use of community colleges along the way to the baccalaureate was neither chaotic nor unamenable to institutional intervention. Important central tendencies emerged. Though the range of community college credits earned by graduates in this study was wide, most of these credits were in arts and sciences disciplines that are associated with collegiate work. And though community colleges were used at any point along the way to the baccalaureate, most (58 percent) of the graduates who attended community colleges divided their undergraduate years between two institutions only: one community college and the alma mater. While many students went their own way, often attending several colleges in unpredictable sequences, a predominant mode was the use of one community college's arts and sciences offerings to augment the curriculum completed at one university.

From the standpoint of those who would strengthen the community college role in baccalaureate education, a key issue lies in the possibility of using this predominant mode as a foundation for strengthened links between two- and four-year colleges. Joint work involving university and community college faculty in the development of arts and sciences courses (or general education curricula) leading students to commonly defined outcomes can help. Even if students do not follow the associate's degree path to the baccalaureate, their less-structured use of the community college curriculum may lead more efficiently to the baccalaureate if the courses they take there represent the shared expectations of university and community college faculty. In addition, cooperative work on course and curriculum development can be augmented by transfer and articulation policies that encourage structured and sequential use of the community college curriculum, even among students who make minimal use of the institution. The recent proposal in Virginia to create 35-unit modules of liberal arts courses, which would be offered throughout the Virginia Community College System and accepted for credit by the state's public four-year colleges, is an example of how transfer might be tied to curricular subunits short of the associate's degree (State Council of Higher Education in Virginia; Virginia Community College System, 1991).

The varied picture of community college usage revealed in this study may or may not hold for other institutions in other states. But where it does apply, educators will be challenged to strengthen interinstitutional ties by working at both curricular and policy levels to help baccalaureate-bound students make the most of the ways they currently use the institution. While some students can be persuaded to follow the traditional two-plus-two path to the bachelor's degree (as is the intent of transfer policies tied to the associate's degree), and while others will use colleges idiosyncratically as life circumstances dictate, further attention may need to be paid to those who fall in the middle ground.

ENDNOTES

1 The State Council of Higher Education in Virginia estimated that in fall 1989, Virginia's 15 public four-year colleges and universities enrolled 3,726 students who had transferred from the Virginia Community College System. Of these students, 2,947 (79 percent) were enrolled at the six universities represented in this study (McCartan, 1990).

2 Enrollment data are from Harris (1991).

3 "Quarter hours multiplied by two-third equal semester hours" (American Association of Collegiate Registrars and Admissions Officers, 1980, p. 16).

4 In these four cases, it was obvious that the transcripts were submitted to the university before the student completed his or her work at the community college. In each case, the transcript was dated prior to the completion of the last semester during which the student was enrolled at the community college. In addition, the transcript listed courses for which the student was enrolled but indicated that credit for these courses had not yet been earned. It is possible that community college transcripts for other students were incomplete, but without the telltale signs listed above, it would be impossible to know.

5 This movement was measured sequentially, using the transcripts to chart—for each student—separate "stints" at individual institutions over time, including college attendance during summer sessions. For example, if a student began her postsecondary studies at University A during the fall of 1985 and completed all of her work at that university with the exception of three credits earned at Community College Y in the summer of 1988, we would record three stints for that student: 1) fall 1985 through spring 1988; 2) summer

1988; and 3) fall 1988 through graduation in 1990. Concurrent attendance also was considered a separate "stint." For example, if the student discussed above attended both Community College Y and her alma mater during the summer of 1988, that summer would be considered a separate "stint" at the community college.

6 A two-step process was used to classify each course listed on the community college transcript. First, the subject of the course was determined, using Adelman's (1990) taxonomy as a guide to interpret the course titles listed on the transcripts. Second, each course was coded as "related" or "not related" to the baccalaureate major listed on the transcript from the alma mater. Decisions were made conservatively, with a narrow focus on subject rather than the broad focus on program. For example, in the case of a students who received a bachelor's degree in nursing, a course designated by Adelman as a nursing course (such as "Clinical Practices in Nursing") would be a "related" course. Courses designated by Adelman as covering pharmacology, microbiology, or other scientific subjects—however much they contribute to the student's program of study—were considered "not related" because they were not nursing courses per se. Only in the field of business administration was this strict construction loosened. All courses designated by Adelman as management, accounting, finance, or business administration were considered to be related courses. Thus, if a student's transcript indicated that s/he received a degree in accounting, community college courses in management, finance, and business administration were considered to be related to the major.

REFERENCES

Adelman, C. (1990). A College Course Map. Taxonomy and Transcript Data. OR 90-527. Office of Educational Research and Improvement, U.S. Department of Education.

Adelman, C. (1992). *The Way We Are: The Community College as Academic Thermometer*. OR 92-511. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

American Association of Collegiate Registrars and Admissions Officers. (1980). *AACRAO Handbook*. Data and Definitions. Washington, DC: American Association of Collegiate Registrars and Admissions Officers.

Harris, S.S. (1991). *Accredited Institutions of Postsecondary Education.* Washington, DC: American Council on Education.

McCartan, A.-M. (November 1990). "Student Transfer in Virginia." A briefing paper prepared for the State Council of Higher Education in Virginia.

Malitz, G.S. (1987). A Classification of Instructional Programs (CIP). CS 87-308. Center for Education Statistics, U.S. Department of Education.

State Council of Higher Education in Virginia and the Virginia Community College System. (November and December 1991). "State Policy on Transfer." A policy statement endorsed by the State Council of Higher Education in Virginia and the Virginia Community College System.

University of Nevada System Articulation Board. (1990). *Strengthening Student Transfer and Articulation within the University of Nevada System.* Reno: University of Nevada. (ED 328 330)

TABLE ONE

Status of Transcripts Analyzed, by Number of Institutions Graduates Attended During Their Undergraduate Careers

	Number of graduates attending		
Status of transcript record	One college only	Two or more colleges	Total
Complete	711	807	1,518
Incomplete	0	213	213
Total	711	1,020	1,731
Percent complete	100	79	88

Note: "Incomplete" cases are accounted for by graduates for whom transcripts from transfer institutions (that is, institutions attended other than the alma mater) are either missing or incomplete.

TABLE TWO

Number of Colleges Attended Along the Way to the Baccalaureate Graduates in study sample (n=1,731)

Number of colleges attended	**Number**	**Percent of total**
Attended alma mater only	711	41
Attended alma mater plus one other college	652	38
Attended alma mater plus two other colleges	242	14
Attended alma mater plus three or more colleges	108	6
Attended alma mater plus an unknown number of other colleges	18	1
TOTAL	1,731	100

▼

TABLE THREE

Types of Colleges Attended Along the Way to the Baccalaureate Graduates in study sample (n=1,731)

Type of institution attended	**Number**	**Percent of total**
Attended alma mater only	711	41
Attended:		
At least one Virginia public four-year college other than the alma mater		
At least one Virginia private, four-year college	47	3
At least one Virginia community college	575	33
At least one out-of-state community college	134	8
At least one out-of-state, public, four-year college	212	12
At least one out-of-state, private, four-year college	109	6
At least one other type of postsecondary institution than those listed above	69	1
Number that attended other postsecondary institutions (besides the alma mater) that could not be identified	18	1

Note: Some students attended two or more institutions in addition to the alma mater. Hence, the column for number of graduates totals more than 1,731, and the column for percent of graduates totals more than 100.

TABLE FOUR

Year of Entrance to Higher Education, by Number of Colleges Attended

Colleges attended	Median year of first college entrance	Percent of graduates who first entered college prior to 1984
Attended alma mater only	1985	19
Attended at least one college other than the alma mater, but no community colleges	1983	50
Attended at least one college other than the alma mater, at least one of which was a community college	1982	62

Missing cases = 213 graduates for whom transcript records were incomplete.

TABLE FIVE

Proportion of Graduates Who Attended Community Colleges or Transferred Credit from Community Colleges to the Alma Mater

	Number	Percent
Attended at least one community college	669	39
Attended no community colleges	1,044	60
Community college attendance unknown	18	1
Total	1,731	100
Alma mater transferred in at least one semester hour of credit earned at a community college	653	38
Alma mater transferred in no semester hours from a community college	1,060	61
Transfer of credit from a community college unknown	18	1
Total	1,731	100

Note for Table 5: Transcripts for 18 graduates indicated that credit had been transferred from other institutions. However, the amount of this transfer credit and the names of the colleges at which these credits were earned were not noted on the transcripts, and the transcripts from the transfer institutions were not attached. Thus, it is impossible to know whether community college credits were involved.

▼

TABLE SIX

Associate's Degrees Earned by Graduates Who Had Attended a Community College

Graduates who had attended a community college	Number	Percent
Earned an associate's degree		
AA	16	3
AS	44	7
AAS	37	6
Unknown type of associate's degree	2	<1
Did not earn an associate's degree	491	83
Total	590	99*

Missing cases = 79 (Community college transcripts were missing for 79 of the 669 graduates who had attended a community college.)

*Note: Percent column does not total 100 because of rounding.

TABLE SEVEN

Credits (Semester Hours) Earned at Community Colleges

Number of semester hours at community colleges	Graduates who attended a community college	
	Number	Percent
1–6	169	29
7–23	124	21
24–60	148	25
61–151	149	25
Total	590	100

Missing cases = 79 (Community college transcripts were missing for 79 of the 669 graduates who had attended a community college.)

TABLE EIGHT

Semester Hours Earned by Graduates, by Type of Institution

	Percent of total semester hours earnedby	
Type of institution	All graduates	Graduates who had attended a community college
Alma mater	82	68
Other Virginia public, 4-year colleges	3	3
Out-of-state community colleges	2	4
Out-of-state, private, 4-year colleges	2	2
Out-of-state, public, 4-year colleges	3	3

Table 8 Continued

Type of institution	Percent of total semester hours earnedby	
	All graduates	Graduates who had attended a community college
Virginia community colleges	7	19
Virginia private, 4-year colleges	1	<1
Other types of institutions	1	<1
Total	101	100

Missing cases = 213

Note: This analysis is based on the transcripts of the 1,518 graduates for whom full transcript records were available. Because those who attended only one college (the alma mater) are overrepresented in this subset, the proportion of credits earned at the alma mater (column one) is slightly overstated. Of the 1,731 graduates in the entire sample, 41 percent attended only one college; this compares to 47 percent for the subset of 1,518 graduates for whom full transcript records were available.

▼

TABLE NINE

Credits (Semester Hours) Transferred from Community Colleges to the Alma Mater

Graduates whose alma maters accepted	Graduates who attended community colleges	
	Number	Percent
0 community college credits for transfer	16	2
1–6 community college credits for transfer	196	31
7–23 community college credits for transfer	125	20
24–60 community college credits for transfer	194	30
60–110 community college credits for transfer	106	17
Total	637	100

Missing cases = 32 (In these cases, transcripts from the alma mater do not disaggregate community college transfer credit from transfer credit earned at other types of institutions. Hence, the number of credits transferred from community colleges is unknown.)

TABLE TEN

Fifteen Patterns of College Attendance Along the Way to the Baccalaureate

Pattern	Percent of all graduates	Percent attending two or more colleges	Credits earned at community colleges	
			Median number	Range
1) Attended alma mater only	45.5	n/a	n/a	n/a
Attended two or more colleges, starting at a community college				
2) CC1->AM	10.4	19.2	51	2–126
3) CC1->CC2->AM	0.7	1.3	55	11–82
4) CC1->FY1->AM	0.6	1.0	49	6–110
5) CC1->AM->CC1->AM	1.5	2.8	39	2–99
6) CC1->other patterns	4.6	8.3	42	2–117
Attended two or more colleges, starting at a four-year college				
7) FY1->AM	9.4	17.2	n/a	n/a
8) AM->CC1->AM	6.6	12.1	3	2–65
9) FY1->CC1->AM	2.7	4.9	25	2–115
10) FY1->FY2->AM	1.8	3.3	n/a	n/a
11) AM->FY1->AM	2.7	4.9	n/a	n/a
12) Other pattern, with a community college attended at some point	9.3	17.0	9	1–101
13) Other pattern, no community college attended	2.1	3.9	n/a	n/a
Attended two or more colleges, starting at a proprietary institution, a private junior college, or other institution				
14) Community college attended at some point	<1	0.8	14	5–63
15) Community college not attended	1.7	3.0	n/a	n/a
Total	99.0	100.0		

Missing cases = 170

(Table Ten Notes continued)
Key: AM = Alma mater (college which conferred baccalaureate)
CC1 = First community college attended
CC2 = Second community college attended
FY1 = First four-year college attended other than alma mater
FY2 = Second four-year college attended other than alma mater

For example, CC1->AM->CC1->AM designates a pattern in which a student first attended a community college, then the four-year college from which s/he eventually received the baccalaureate, then returned once again to the original community college for additional study, and then went back to the four-year college.

Note: This table is based on an analysis of the transcripts of the 1,518 graduates for whom full transcript records were available, as well as the transcripts for an additional 43 graduates whose transcript records were not complete but for whom patterns of college attendance over time could be traced through notations on the alma mater transcript. Because those who attended only one college (the alma mater) are overrepresented in the subset used in this analysis, this table overstates the proportion whose only undergraduate experience was at the alma mater.

TABLE ELEVEN

Distribution of Semester Hours Earned by the Graduates at Community Colleges, by Subject Area

Subject Area	Semester hours earned	Percent of total semester hours earned
Arts and Sciences		
Biological sciences	1,602	8
Computer science	799	4
Engineering & engineering tech.	810	4
English composition & literature	2,944	14
Fine and performing arts	915	4
Mathematics	2,319	11
Physical sciences	1,385	7
Psychology	1,108	5
Social sciences	3,432	16
Other arts & sciences	915	4
Total, arts & sciences	**16,229**	**77**

Table Eleven Continued

Subject Area	Semester hours earned	Percent of total semester hours earned
Basic skills		
Precollegiate mathematics, reading, or writing	232	1
Other skills classes, including college orientation, career guidance, etc.	353	2
Total, basic skills	**585**	**3**
Career areas		
Allied health & nursing	660	3
Business, including accounting, management, and marketing	1,435	7
Communications & communications technologies	267	1
Education	79	<1
Protective services	382	2
Other career-related areas	628	3
Total, career areas	**3,451**	**17**
Indeterminable subjects	**64**	**<1**
Physical education, health, & athletics	**523**	**2**
All subjects	**20,852**	**100**

Missing cases = 79

Note: The number of semester hours earned in precollegiate mathematics, reading, and writing courses does not reflect true student usage of these courses, because most students who completed these courses received no credit for them.

TABLE TWELVE

Distribution of Graduates, by Academic Major

Academic Major	Graduates in the Sample Entire Sample	Attended alma mater only	Did *not* attend a community college	*Did* attend a community college	Earned at least 24 credits at community college
Allied health & health technologies	7%	4%	6%	7%	6%
Business	23%	23%	22%	25%	23%
Communications & communications technologies	3%	4%	4%	2%	2%
Education	9%	7%	8%	11%	13%
Engineering & engineering technologies	10%	9%	9%	11%	13%
Humanities	11%	12%	11%	8%	7%
Interdisciplinary majors	4%	4%			
Other career areas	4%	4%	3%	3%	2%
Other sciences	16%	18%	17%	13%	15%
Protective services	3%	3%	3%	3%	3%
Social Sciences	10%	11%	12%	10%	11%
Unknown	<1%	<1%	<1%	1%	<1%
Total	100%	99%	99%	98%	100%

Note: Because of rounding, columns do not always total 100 percent.

▼

TABLE THIRTEEN

Proportion of Community College Semester Hours Earned In Subjects Directly Related to Graduates' Baccalaureate Majors

Subject area	Semester hours earned by students who did *not* major in the subject	Semester hours earned by graduates who majored in the subject	Percent of total semester hours earned by graduates who majored in the subject
Arts and Sciences			
Biological sciences	1,545	57	4
Computer science	617	182	23
Engineering & engineering technology	112	698	87
English composition & literature	2,807	137	5
Fine and performing arts	684	231	25
Mathematics	2,315	4	<1
Physical sciences	1,369	16	1
Psychology	1,047	61	6
Social sciences	3,273	159	5
Other arts & sciences	893	22	2
Total, arts & sciences	**14,662**	**1,567**	**10**
Basic skills			
Precollegiate, mathematics, reading, or writing	232	0	n/a
Other skills classes, including college orientation, career guidance, etc.	353	0	n/a
Total, basic skills	**585**	**0**	**n/a**
Career areas			
Allied health & nursing	324	336	51
Business, including accounting, management, and marketing	782	653	46
Communications & communications technologies	258	9	3
Education	19	60	76

Table Thirteen Continued

Subject area	Semester hours earned by students who did *not* major in the subject	Semester hours earned by graduates who majored in the subject	Percent of total semester hours earned by graduates who majored in the subject
Protective services	173	209	55
Other career-related areas	580	48	8
Total, career areas	**2,136**	**1,315**	**38**
Indeterminable subjects	64	n/a	n/a
Physical education, health, & athletics	494	29	5
All subjects	**17,941**	**2,911**	**14**

Missing cases = 79

CLASSROOM CONTEXTS AND ACADEMIC TASKS:

A Comparison of Equivalent Courses in Community Colleges and Their Primary Receiving Baccalaureate Institutions

JANET H. LAWRENCE, PROJECT DIRECTOR
KATHLEEN HART, PROJECT MANAGER
CENTER FOR THE STUDY OF HIGHER AND POSTSECONDARY EDUCATION, SCHOOL OF EDUCATION, THE UNIVERSITY OF MICHIGAN

With support from the National Center on Academic Achievement and Transfer, researchers at the University of Michigan School of Education are conducting a study of courses that are currently defined as equivalent in articulation agreements between three community colleges and their primary- receiving baccalaureate institution. This report summarizes the results of the first phase of the study, which was designed to identify similarities and differences in faculty expectations for students and in the ways faculty teach. A later report will summarize findings from the study's second phase, which involves an assessment of the cognitive and procedural complexity of the graded assignments in the courses.

The higher education literature emphasizes the importance of curricular equivalence to successful academic transfer and achievement among community college students (American Council on Education, National Center for Academic Achievement and Transfer, 1990, 1991; Wechsler, 1989). To date, however, no researchers have directly compared community college courses with their equivalent courses at receiving baccalaureate institutions. The purpose of this study was to develop a method for categorizing instructional activities and and to use this method to identify those classroom practices that differed and those that were common in institutionally defined "equivalent courses" at community colleges and baccalaureate institutions. The ultimate goal was to suggest how these similarities and differences might affect community college students who were preparing for transfer and upper division coursework and attempting to fulfill competency requirements at the baccalaureate institution.

THEORETICAL PERSPECTIVE

The conceptual framework of this study links the higher education literature on curricular equivalence and college persistence with cognitive and social perspectives of the teaching-learning process. Although higher educators emphasize the importance of curricular equivalence to successful academic transfer and achievement among community college students (e.g., Wechsler, 1989; American Council on Education, National Center for Academic Achievement and Transfer, 1990, 1991), the literature that attempts to define or measure curricular equivalence is fragmented. To date, researchers have studied three aspects of curricular equivalence: course-taking patterns, faculty reports of instructional goals and teaching practices, and consistencies in course emphases.

Adelman (1989) and Ratcliff and Jones (1991) have focused on course-taking patterns and student outcomes. Adelman (1989) completed content analyses of students' transcripts and identified differences in course-taking patterns between community college transfer students who completed the baccalaureate degree and those who did not. Ratcliff and Jones (1991) have used student transcripts and test scores of native students (those who matriculated in baccalaureate institutions) and transfer students to determine the extent to which coursework with like course numbering yields similar effects in terms of the students' general learned abilities.

Other researchers have examined differences between community college and baccalaureate faculty members in terms of their goals for students and their teaching methods (Lawrence, Hart, Dickmann, Bentley, Saulsberry, & Linder, 1990; Stark, Lowther, Bentley, Ryan, Genthon, Martens, Wren, & Shaw, 1990). These studies and others (c.f., Richardson & Bender, 1987) indicate that baccalaureate and community college faculty perceive major differences in their course content, their standards of performance, and their grading practices.

In one of the few studies of actual college classroom practice, Richardson, Fisk, and Okun (1983) observed a full semester's worth of teaching methods used in 20 separate classrooms at one community college. They found little evidence of an emphasis on critical literacy, as exemplified by the reading and writing demands placed on students. However, no researchers have directly compared the pedagogical practices employed in community college courses with those used in equivalent courses at receiving baccalaureate institutions.

Recent work in cognitive psychology emphasizes the importance of academic tasks in shaping and influencing student learning (Blumenfeld, Mergendoller, & Swarthout, 1987; Doyle, 1983; McKeachie, Pintrich, Lin, Smith, & Sharma, 1990; Pinrtich, 1989). Academic tasks comprise major assignments such as tests and writing assignments that faculty members design to engage students with subject matter and foster particular types of learning. Tasks encourage students to use particular thinking processes (e.g., memorization of information, application of formulae or theoretical principles, evaluation of conclusions or problem solutions, etc.). Their use of specific processes leads students to think in particular ways about the substantive content of a course. All assignments students complete may affect their learning, but researchers believe tasks that count toward a student's final grade are particularly influential because they are integral parts of a social process—the performance-for-grade exchange (Becker, Geer, & Hughes, 1968). These scholars argue that academic tasks and the weight they carry in students' final grades indicate to learners what is important knowledge, how it should be best organized in memory, and how it can be used (Doyle, 1983; Pintrich, 1989; Shulman, 1986).

Studies conducted primarily in elementary and secondary settings suggest that tasks vary in terms of two theoretical dimensions: content and form. The content *dimension* accounts for differences in the subject matter with which the student is working (i.e., variations in epistemology, the amount of information that needs to be covered, the difficulty of the material, etc.). The *form dimension* represents differences in the structure or requirements of the task itself (i.e., whether the student must work independently or in a group, whether the assignment is a research paper or essay, whether test questions are multiple choice or essay, etc.). The various aspects of task content combine in different ways to determine a particular task's *cognitive complexity*, which is defined by the nature and scope of the material students must work with and the kinds of thinking students must use to complete the task. The features of task form also affect a task's *procedural complexity*, or the number of steps and materials students must use to complete the task.

By way of illustration, the *cognitive complexity of a test* depends on the amount and difficulty of the information a student must know (content dimension) to pass, while its *procedural complexity* depends on the number and types of items included, i.e., multiple choice, short answer, essay (form dimension). The *cognitive complexity of a paper* assignment is affected by the types of information sources the student must use and the extent to which the student is familiar with those sources (content dimension); a paper assignment's *procedural complexity* increases or decreases depending on length and format requirements (form dimension). As students in introductory courses study for different types of tests and write different sorts of papers, they learn how to utilize knowledge and how to understand and manipulate information in order to influence their future academic performance.

Classifying academic tasks in terms of their content and form enables one to understand more clearly why students may organize content in a particular way and why they may differ in their ability to work with or use this knowledge. This approach also provides educators with a mechanism to determine the extent to which the tasks they design encourage the kinds of thinking they seek to develop in their students.

Academic tasks are embedded within the social context of the college classroom. The literature on college persistence and academic achievement highlights the importance of the classroom as a socializing environment in which faculty members reinforce those attitudes and behaviors they believe are critical to academic success. Researchers have found that students who share and conform to these expectations (i.e., those who become academically integrated) are most likely to persist through graduation from college (c.f., Pascarella and Terenzini, 1991, pp. 393–397). Stated another way, as faculty and students engage in the performance-for-grade exchange process, students learn what it means to be a college student and what they need to do to be successful. These general expectations are learned along with specific knowledge about a field or discipline, and they affect how students will approach higher-level study; those individuals who become socialized to one set of norms and transfer to an institution where the norms are different will likely have some initial difficulty adjusting.

Our framework for studying course equivalency takes into account both the classroom context, which comprises the faculty member's expectations for students and ways of familiarizing students with a body of information, and the specific academic tasks used to evaluate student learning that focus their attention on what to learn and how to learn it. The framework does not assume that any one way of teaching is best; both different methods and different academic tasks can lead to similar learning outcomes. Rather, it assumes that specific learning problems that students have in advanced study within a particular field or discipline are attributable to both what they were taught and how they were taught to think about and use this information in prerequisite or related courses. It also assumes students develop perceptions of what college-level study entails, expectations that may affect the initial academic adjustment and performance of community college transfer students. The key premise is that if community college courses do not include content, tasks, and performance expectations that are *comparable* to those of equivalent courses at baccalaureate institutions, the differences are likely to affect students' chances of success after transfer.

STUDY DESIGN

Data were gathered in introductory courses that were defined as equivalent in articulation agreements between three community colleges (one suburban and two urban) and their primary-receiving baccalaureate institution (an urban university). The specific courses examined were English composition, history, political science, calculus, and chemistry. These courses were selected to represent a cross section of humanities, social sciences, and natural science courses that students often transfer to baccalaureate institutions and, in the case of calculus and chemistry, because they are prerequisites for upper division courses.

From a total population of 131 faculty members, we selected a stratified random sample of individuals teaching sections of each course, so that the proportion of respondents was consistent with the distribution of full-time, part-time, and graduate assistants teaching during the fall 1991 term. From the total stratified random sample of 70 selected individuals, 45 agreed to participate in the study; each one taught from one to 15 sections of a given course. Ultimately, we gathered a complete set of data from 39 of these individuals (Response rate = 55.7 percent)—ten English composition teachers; nine political science teachers; eight history teachers; seven calculus teachers; and five chemistry teachers. Because most participants were teaching multiple sections of each course, the study sample was responsible for teaching a significant proportion of the sections offered. In history, the sample accounted for 17 of 19 sections taught (89.5 percent); in political science, 47 of 90 sections (52.2 percent); in chemistry, 25 of 43 sections (58.1 percent); in calculus, 8 of 18 sections (44.4 percent); and in English composition, 22 of 133 sections (16.5 percent).

We completed content analyses of course documents and gathered data from faculty members through two interviews, one conducted near mid-term and one after the end of the term. Course and section-level documents (e.g., college catalog descriptions, course syllabi, grading procedures, etc., and copies of all tests and quizzes, writing assignments, etc., used to determine a students' final grade) were collected from each faculty member in advance of the initial interview. Prior to the interviews, the documents were content analyzed. The interviews were used to clarify or expand on information gleaned from the course documents and to gather additional course-level information. This information included the faculty member's perception of his/her autonomy vis a vis course control, his/her representation of the content coverage of the course, his/her goals and emphases for the course, the teaching methods, perceptions of his/her relationship with students, performance expectations, and grading practices.

Interviewers also engaged faculty in discussions about their course tasks. They questioned faculty about the types and amounts of course material covered by tests and assignments (e.g., whether materials were from books, articles, lectures, etc.; number of pages covered; percent of primary, secondary, and other sources), ways in which the faculty member prepared students for completing tests and assignments (e.g., time spent reviewing, whether sample questions or models were provided and when, whether students received the actual test questions before the test), the testing or writing situation (e.g., whether the task was completed in class, at home, alone, or in groups; what resources students might use as they completed the task), how the test was evaluated (e.g., whether the test or assignment was graded individually, competitively, or cooperatively and whether students could be awarded partial credit), and the type of feedback students receive on the assignment.

The second interview centered on the tests and graded assignments that the teachers had made since the first interview. At this time, faculty were also asked a series of questions that were identical to those asked in the first interview to determine if they had changed any practices (e.g., how they graded, the number of tasks assigned, etc.) since the beginning of the term. Both interviews were tape-recorded, and responses to open-ended questions were transcribed directly into the interview protocol along with the interviewer's initial coding of the respondent's answers to questions with fixed response sets. Files were established for each faculty member and included the transcribed interviews, the syllabus, and all other course materials.

DATA ANALYSIS

The data can be analyzed at several levels. Each academic task in a course section can be described in terms of its key features: its weight in the final grade, its content, and its form. The collection of tasks assigned over a semester in a particular faculty member's course section can be aggregated and their characteristics described. At the next level of abstraction, all tasks from all sections of a course can be treated as a unit of analysis. Furthermore, all the academic tasks that a student completes in a given time frame can be analyzed, i.e., tasks from different courses can be collapsed for a given term. Similarly, features of the classroom context, e.g., faculty expectations for students, can be treated as the unit of analysis and comparisons can be made across sections of a course or across courses.

This report focuses on the similarities and differences in faculty reports of the tasks they used to evaluate students and various facets of the classroom context. The data from the interviews and the content analyses of the course materials were used to create profiles for each course section. The profiles summarize the topics covered, course goals, teaching methods and grading practices, and faculty expectations of students. In addition, a more detailed analysis of the graded assignments used most often in each course section (writing assignments for English composition and tests for all other courses) is provided. These analyses present such information as how much assigned reading and lecture material was covered on the tests, the length of the writing assignments, etc.

The course section profiles provide a rich data base and lend themselves both to detailed analysis of one facet of instruction and to course descriptions across several theoretical dimensions. In light of our overall interest in academic transfer from community colleges to baccalaureate institutions, this report focuses on several facets of the classroom context that can affect learners' socialization to the student role. The classroom context variables that are highlighted describe the arrangements that faculty make for meeting/talking with students outside of regularly scheduled class time, their expectations with regard to deadlines and student study time, their practices with regard to extra credit, etc. These expectations indicate the attitudes and kinds of behavior valued by faculty. The types of tasks assigned in equivalent introductory courses are also detailed. Academic task variables refer to course content and evaluated assignments and prepare students to think about and use the subject matter in different ways. Together, these sets of variables account for general student expectations, the specific content students learn, and their academic success.

FINDINGS

Calculus

The equivalent courses were the first-level calculus courses offered at the three community colleges and the baccalaureate institution. All sections sampled at the baccalaureate institution were taught by full-time faculty, and six of the seven sections sampled at the community colleges were taught by full-time faculty.

Faculty responses to questions about who decided on the class content and the text suggested that these decisions were made collectively, at the department/unit level. The text selection was particularly important, as faculty indicated that they relied heavily on the textbook for homework and for exam problems. On the other hand, all respondents stated that they decided individually which topics to emphasize, whether to supplement the course text with other materials, and how to evaluate their students' learning.

The calculus faculty members tended to hold similar expectations in terms of the amount of time students studied for this introductory class (about 8 hours). However, the data suggest that the community college faculty assigned more text to read and more homework problems.

All faculty said that preparing students for other calculus courses was very important, and the content covered in the classes appeared to be the same. They reported that class time was devoted to explaining specific laws, principles, theorems, proofs, etc. and to acquainting students with the process of doing calculus. Although the faculty in our sample used the lecture as the primary mode of instruction, two community college faculty members said that relatively small portions of class time (14 percent and 21 percent) were devoted to individual work on problems. In addition, one of the baccalaureate courses was a combination large lecture (50 students) with quiz sections; one quiz section was taught by the faculty member and the other by a teaching assistant. Quiz sections provided students the opportunity to work and review problem solutions with the teachers.

The tasks on which students in Calculus I were evaluated were primarily in-class tests (four of the seven faculty members use tests exclusively), supplemented with graded quizzes and homework assignments. One faculty member gave weekly quizzes, but grades on these quizzes constituted only a small portion (16 percent) of the final grade for the course.

A common practice in most calculus sections was to administer a precalculus test (the first test in all sections) designed to identify those students with weak entry skills. Another similarity was that test problems were likely to be those students had seen and/or worked before (with different values inserted). Moreover, in all but one course (a community college course), the final was a comprehensive examination. A key difference between the courses in the two settings was the frequency of testing; baccalaureate faculty gave fewer tests; consequently, each test counted more toward the student's final grade for the course. While one of the two baccalaureate faculty gave weekly quizzes, the amount of content on any one test was likely to be greater in the baccalaureate class, and students might feel greater pressure to do well on each test since they had fewer opportunities to improve their grades. Quizzes had minimal impact on final grades.

Responses to questions about the grading of tests and end-of-course grading suggest that these faculty used similar practices. A comparison of test grading practices revealed that calculus faculty tended to use a set scale (e. g., 90–100 percent correct = A, 80–89 percent correct = B, etc.) to assign test grades; only one individual assigned test grades based on a class curve One teacher allowed students to retake exams (for practice or reinforcement), but the initial grade was the one that was factored into the final course grade. When asked how they gave feedback on test performance, the faculty reported that they reviewed the problems in class.

As a rule, the calculus faculty based final course grades on tests, quizzes, and homework; only if a student was on a borderline between grades did they take into account improvement over the term. Most did not consider effort, class participation/preparation, and attendance under any circumstances. Calculus faculty did not provide opportunities to earn extra credit to raise a test or final grade. All calculus faculty used a set scale to assign final course grades.

Chemistry

The introductory chemistry course was general chemistry, a prerequisite for all upper-division chemistry courses and a required course for many professional programs of study (e.g., nursing, nutrition, engineering, etc.). All but one section (a community college section) were taught by full-time faculty members. The baccalaureate classes were large lectures with 150–200 students. Large lectures were subdivided into small laboratory and quiz sections taught by teaching assistants who were supervised by the faculty members. The community college classes enrolled approximately 28 students each, and the full-time community college faculty taught four sections each.

As in calculus, decisions about course content, overall course organization, and the text seem to be made at the unit/department level, while decisions about the number and types of assignments and grading rest with each individual faculty member. Also, as in the calculus courses, the text greatly influenced the course content and organization. For the most part, students and faculty worked together through the text, and homework problems were assigned from the text. Nonetheless, faculty reported that the number and types of assignments given during the term were completely at their discretion.

The chemistry faculty expected that their students would spend approximately the same amount of time preparing for class (about 11–12 hours per week), and they tended to assign approximately the same amount of work. As with the calculus faculty, the chemistry faculty said they were preparing students for upper-division chemistry courses, and it appears that they covered the same information. However, unlike the calculus faculty, all but one teacher indicated that they were also preparing students for vocations.

Lectures and laboratory experiments were the primary methods of instruction in chemistry. For the most part, the labs involved students in the process of doing chemistry, although two community college teachers indicated that they devoted some lecture time to individual work on problems. Chemistry faculty reported that they used lectures to transmit information and to teach about different ways in which chemistry is used.

The grading practices of these faculty members were quite similar. The final grade for each course was based on test scores and the lab grade; improvement, effort, class participation/preparation, and attendance were taken into account by some faculty, but only in borderline cases. Deadlines for assignments were taken seriously, and points were subtracted if assignments were turned in late. However, the community college faculty differed from their baccalaureate institution counterparts with regard to extra credit. Two of the three community college faculty made arrangements for students to earn extra credit, whereas neither of the baccalaureate faculty did.

The amount of material covered and the testing schedules were similar across institutional settings, so the tests are likely to be comparable in terms of the amount of content covered on each one. All faculty gave a comprehensive final exam that constituted 25–30 percent of the final grade, and all but one graded tests using a set scale; the other (in the baccalaureate institution) graded on a curve. One community college teacher allowed students to retake examinations, but this person did not indicate how this grade affected the calculation of final grades.

The laboratory assignments counted only 25 percent or less toward their final course grade; the remaining 75 percent of the final grade was based primarily on test scores. When they calculated final grades, the baccalaureate faculty members dropped the lowest of six test scores; one community college faculty member calculated the final grade in this way and by an alternative method that gave greater weight to the final and used the better score; another dropped the lowest test and lowest quiz scores. Hence, chemistry students may have felt a bit less pressure than calculus students to do well on all tests. With the exception of the one baccalaureate faculty member who graded on a curve, chemistry teachers based their final grades on a set scale.

Political Science

All college students in the state of Michigan are required to take a political science course that acquaints them with the American political system.

The community colleges and the baccalaureate institution offered many sections of this course. In fact, the average number of sections taught by the political science faculty was the highest of all the courses we sampled (the range was 1–15 at the baccalaureate institution and 1–6 at the community colleges). All but one of the community college faculty in the sample were full-time, and the baccalaureate faculty were mixed (two were full time, one was part time, and one was a graduate teaching assistant).

The faculty responses to our questions revealed a great deal of variation within and across institutions with regard to what they expected and how they taught the classes. Faculty expectations with regard to how much study time students should devote to political science ranged from 2 to 8 hours per week at the baccalaureate institution and from 3 to 9 hours at the community colleges. As a whole, the baccalaureate faculty assigned more reading, but the range was great-—from 399 to 769 pages per week at the baccalaureate institution to 25 to 920 pages at the community colleges. Differences in both faculties' expectations for students were more evident here than in chemistry or calculus.

Across settings, political science faculty used lecture and discussion as the primary methods of instruction. Two of the baccalaureate teachers with large lecture classes (238 and 183 students, respectively) had course schedules that were configured to allow time for discussion groups/quiz sections; thus, they had three hours of lecture and one hour of discussion/quiz. The faculty in the two settings were uniformly concerned with transmitting information; to varying degrees, teaching students about how political science is used and involving them in the political process were also goals of these faculty. At the baccalaureate institution, three of the four faculty were concerned about preparing students for upper-division courses in political science; only one community college teacher shared this concern.

The political science department in the baccalaureate institution appears to have made more of an effort to systematize instruction across sections of the same course by using a common text. Whereas the baccalaureate faculty said the content and text were decided at the department level, the community college faculty reported that the text and content were determined by each instructor. These differences are somewhat evident when the content covered across sections is considered.

In both settings, faculty created the tests and assignments and decided how to evaluate students' performance. Course grades were based largely on test performance, and factors such as effort, improvement, and preparation were considered only when the grade was borderline. The political science faculty tended to give approximately the same number of tests, and in most cases, they reported that they did not give comprehensive exams. The baccalaureate faculty varied in terms of giving test feedback to students: one teacher reported that tests were not returned, and the only feedback was a general discussion of class performance; the others returned graded tests. Two community college faculty did not return tests, but they did give out scores.

Attendance was figured directly into the final grades awarded by one baccalaureate and one community college teacher. In addition, deadlines were enforced, and all but one faculty member reported that he or she deducted points or refused to grade late assignments. Extra credit options were available to students in two of the baccalaureate faculty members' sections and in all but one of the community college classes. Final grades typically were based on standard point scales; only one baccalaureate part-time faculty member graded on a curve.

Although the primary mode of student assessment was the test, two individuals at the baccalaureate institution and one at the community colleges required graded writing assignments. In all cases, the written projects constituted 25 percent of the final course grade. The two baccalaureate institution faculty members who gave a writing assignment taught the majority of sections offered in the fall 1992 term (25 sections), while the community college teacher taught only one section. Hence, the chances were greater that the baccalaureate students completed written assignments as part of their political science coursework.

History

The history courses were western civilization courses that covered the time period up to the seventeenth century. Among the faculty teaching the baccalaureate courses, two were full-time and two were part-time; of the four community college teachers, three were full-time and one was part-time. The number of sections taught by individual faculty members varied, but not as much as in political science.

The faculty teaching introductory history said that their emphasis in class was on the transmission of historical information to students, but they also reported that they were trying to acquaint students with the historical process. The baccalaureate faculty were more concerned with preparing students for subsequent coursework in history, but the two groups were similar with regard to the importance they attached to linking history with other disciplines.

Faculty differed in the amount of time they expected their students to spend preparing for class. Those teaching different sections at the baccalaureate institution varied most. The range was from 3–10 hours per week at the baccalaureate institution and from 6–8 hours per week at the community colleges. Variations in teaching methods were also apparent, particularly within the community colleges. The baccalaureate faculty depended largely on lecture and lecture/discussion formats, and among the community college faculty, two of the four indicated they relied primarily on lecture and lecture/discussion. However, the other two community college teachers said they used large group discussion and collaborative learning groups.

Faculty reports of their control over course content, textbooks, and assignments indicated that they worked independently. Their responses suggested that there was less decision making about introductory history courses at the department or unit level than was the case for the natural science and social science courses. (Note: In two instances, the community college respondents were the only people teaching the course; in another, they were members of a two-person department.)

Faculty members in both settings tended to use tests to evaluate students, but the baccalaureate teachers tended to give fewer tests, each one comprising a larger part of the final grade. Because the baccalaureate faculty gave fewer tests and tended to assign more reading, students needed to learn more for each test; consequently, there was greater pressure to do well on each one. History faculty tended not to give a comprehensive exam, and students in both settings were likely to be given tests that included essay questions. Two of the baccalaureate faculty had graded assignments in addition to the exams; in one case, two writing assignments constituted half of the final grade. A major writing assignment also was given by one of the community college faculty members; one other based more than 25 percent of the final grade on a reading/response journal kept by each student throughout the semester.

Final grades were calculated on the basis of graded tests and assignments. In both settings, faculty tended to use a set standard for calculating overall grades, but at the baccalaureate institution, one individual did grade on a curve. When a student's grade was borderline, faculty took improvement, effort, and preparation into account; attendance was calculated as an actual percentage of the final grade by the faculty member who used collaborative groups and large group discussions. The baccalaureate teachers who gave graded assignments were more likely than community college teachers to penalize students for missing deadlines.

Although faculty in both settings gave students opportunities to raise their grades, the nature of these extra-credit assignments varied. At the baccalaureate institution, the options were an interpretive essay and a research paper; in the first instance, the grade on the midterm could be raised by 10 percent; in the second, the student could increase the percentage of the final grade based on the assigned research paper with additional work. At the community college, the student could, in one case, earn 25 points for a library search and 10 points for responding to a history question; in another, students could earn 5 bonus points for completing all homework assignments.

English

On all but one of the campuses, the English composition course was for students who had demonstrated some level of proficiency through screening or placement test scores. At the baccalaureate institution, two sections were taught by part-time faculty and one by a graduate teaching assistant; no full-time faculty members were teaching this course during the fall 1991 term. Of the seven community college teachers in our sample, five were full-time faculty members, and two were part-time. Most individuals were teaching either one or two sections of the course; one community college faculty member was teaching four sections, and another, three sections.

The English teachers most often reported that the general content and goals of the course were agreed upon at the department level, but the class organization, the number of assignments, and the specific topics for assignments were determined by each instructor. At the baccalaureate institution and at one community college, faculty said the department specified that students were required to do some impromptu writing and a research paper, leaving the remaining writing assignments to the individual instructor's discretion. Although the baccalaureate faculty were likely to require longer papers, approximately six graded writing assignments were required in most sections; a section of the course offered at the community colleges required only three graded writing assignments, and another section required ten. The difference in paper length might account, in part, for the variations in the amount of time the English composition faculty expected students to devote to class preparation.

As was the case for the history courses, a range of teaching methods were used within and among institutions. Some individuals stressed large group discussion, others combined lecture with discussion, and others used collaborative and peer-review groups and in-class writing. Some people reported that they spent most of their class time lecturing about and or discussing readings as examples of effective writing. These faculty were likely to be those who required reactions to assigned readings or materials presented in class, included impromptu writing in class, and taught students to write a library-based research paper. Others spent class time having students work on the drafting and revision phases of the writing process and/or working in peer-editing and revision groups. In some classes, students were expected to write essays primarily about personal experiences, while in others, students responded readings, analyzed texts, or argued a thesis based on library research. Differences in the types of tasks were critical to students in the equivalent classes because the baccalaureate institution had an English proficiency examination that involved impromptu writing. Consequently, students at all but one community college could be at a disadvantage immediately after transfer when they are required to sit for the English Proficiency Examination, which requires that students write an impromptu essay.

The grading practices of the faculty in the different settings were similar insofar as improvement and effort were taken into account only when a student's grade was borderline. Preparation, in-class participation, attendance, and meeting deadlines were all reported to be factors that were counted in the calculation of grades. Baccalaureate institution faculty did not give extra-credit assignments, but half of the community college faculty did. These assignments were typically further revision or expansion of an assignment already completed (such as an essay or library assignment). When faculty were asked about the type of feedback students received on their written assignments, they indicated that they returned papers with written comments and grades.

DISCUSSION

Clearly, these brief course synopses fail to describe all facets of the classroom context. They do, however, provide a structured view of several key teaching-learning environment features that allows for meaningful comparisons. In the next few pages, we draw inferences for students in these courses. But before we do this, we note some key findings regarding the importance of academic tasks to the definition of equivalence and some important differences between the part-time and full-time faculty in both institutional settings.

When we asked who made decisions about the content of most of the introductory courses we studied, the answer was most often the academic unit or the departmental faculty. On the surface, catalogue descriptions and syllabi suggested that there was some standardization of content coverage. Likewise, it was the "department" that selected the text for these introductory courses. Such agreements are critical in the natural sciences, where the epistemologies tend to be structured hierarchically, and the faculty teaching these first -level courses assume they are preparing students for the next course in a sequence. Faculty who teach upper-division courses assume that certain baseline information has been covered in prerequisite courses. However, teachers of introductory courses in political science, history, and English composition did not seem to feel the same pressure to prepare their students.

When we asked who decided what to emphasize, what types of graded assignments to give, and how to assign grades, the answer for all disciplines was the individual teacher. Faculty members reported that they decided whether and how much they lectured, how much reading to assign, and how many and what types of graded assignments (academic tasks) they used to evaluate students' learning. Yet, in spite of faculty autonomy, the courses appeared to be quite similar with regard to course organization, teaching methods, the number and types of assignments, and overall grading practices. Almost everyone lectured, and most faculty members based course grades on students' test performance, regardless of class size or institutional setting. However, when one looks closely at faculty expectations for students as manifested in their graded assignments, differences emerge. In short, the tasks are more likely to discriminate among course sections than general measures of classroom context.

Both types of institutions use part-time faculty in these introductory courses. During the fall 1991 term, the baccalaureate institution in our study offered a total of 123 sections of the five introductory courses we sampled; 33 percent were taught by full time faculty, 42 percent were taught by part-time instructors, and 25 percent were taught by graduate teaching assistants. A total of 168 sections of these courses were offered by the three community colleges, and of these, 59 percent were taught by full-time faculty, and 41 percent were taught by part-time instructors. We found few distinctions among these groups of teachers, save one: the part-time faculty did not have as much time to interact with students outside of class. If they had office hours, they were shorter, and most often, they said they met with individual students either immediately before or after class. Faculty-student interactions are critical to students' academic integration and persistence. Consequently, what may appear to be a small difference within the total picture is very important to students who are likely to have fewer opportunities to meet with part-time faculty outside of regularly scheduled class time.

Similarities and differences in the natural sciences

Students taking calculus on the different campuses learned to glean information from lectures in small or medium-sized classes and to take tests. All the faculty used tests as the primary or exclusive means of student evaluation, and no one allowed students to compensate for poor test scores by doing extra credit assignments or taking make-up tests. However, the baccalaureate students learned to take examinations that covered more information and to perform on tests when the stakes were higher (i. e., they had fewer tests). The community college students became accustomed to more frequent tests covering smaller amounts of information. All students learned to review and be tested on the content covered over an entire semester (i. e., take a comprehensive examination). In all chemistry sections, students found themselves in classes where the mode of instruction was lecture. However, those enrolled at the baccalaureate institution were in large lectures (120–200 students), while those at the community college were in small lecture/discussion sections (20–30 students). The group dynamics in these situations are quite different and may have different effects on students. In the large sections, the student is likely to remain anonymous (except for his or her performance on graded assignments). Only the most confident student is likely to interrupt a lecturer or ask for clarification, even when invited to do so. The smaller lectures, on the other hand, are more conducive to questions about course content and give-and-take between faculty members and students; faculty have more opportunity to get to know students by means other than test performance.

Our comparison of the chemistry sections revealed that all students took about the same number of tests and had a comprehensive exam at the end of the term. Their grades were affected most by their performance on these tests and least by their lab grades, suggesting that they would organize their learning primarily for test taking and place less emphasis on the interpretive and synthetic processes used in the labs. They all learned that graded lab assignments had to be completed on time. However, only the community college faculty members allowed students to raise their grades by completing extra-credit assignments, but all students with borderline grades were positively affected if they showed improvement or effort over the grading period.

Given the classroom-level data we have gathered, it appears that the students taking natural science courses are having more similar experiences than different ones. They all are being encouraged to organize information primarily for the purpose of taking tests, and the information is being presented in lecture form so they are required to develop notetaking skills. One might speculate that the students in the community college chemistry courses may also be developing their ability to ask clarification questions in the smaller lecture groups. (However, we do not have any direct evidence that this is the case.) Contrary to what we expected, based on the comments of faculty in these disciplines, we found few instructors who graded on a curve, meaning students were not competing directly against one another for a grade. This suggests that faculty might have been somewhat conservative in the types of examinations they constructed for the introductory courses since the points lost on any one item had a greater effect on a student's overall grade.

Similarities and differences in the social sciences

Students taking political science at the baccalaureate institution were in large lectures, whereas those in the community colleges were in small lecture/discussion classes of about 40 students. So some of the generalizations and speculations about the classroom dynamics in chemistry hold here, as well.

Students in political science courses were evaluated primarily on the basis of their test performance and therefore would be organizing information for test taking. The assigned reading was a bit more extensive at the baccalaureate institution, so it is likely that students had to organize and retain more information for each test. Students in the baccalaureate courses were also more likely than their counterparts in community college classes to have a major writing assignment in addition to tests. As a result, they worked with the information in more ways. However, in light of the similarities in assignments and grading practices, students appear to have been given similar cues about academic expectations, such as the importance of meeting deadlines and whether they can improve their grades through extra-credit assignments.

Similarities and differences in English and the humanities

Because transfer students must pass a proficiency exam shortly after transferring, it is important that they have experiences similar to those of native baccalaureate students in order to have an equal chance of passing the test. Students enrolled in baccalaureate English composition classes and students in one of the three community colleges were given more than one opportunity to practice the skills needed to pass the test (an impromptu essay), and they also were given practice writing a research paper. Students in equivalent courses offered at two of the community colleges were not doing either type of task. Consequently, they are likely to be at a disadvantage on the test, and perhaps in upper-level courses that presuppose at least some prior experience with writing a research paper. While we would agree that one should not necessarily teach to a test, in this case, it is more the practice with writing under time and topic constraints that would benefit the students than practice to show their knowledge of particular information.

Within and across campuses, faculty differed in the types (and lengths) of papers they required students to write. They also varied in how they used reading and in what they had students write about. Some devoted a significant portion of class time to presenting models of successful student and professional writing, expecting students to produce essays of similar rhetorical form. Some spent time analyzing and discussing reading materials with students so they would be ready to write about (or in response to) them. Others deemphasized reading entirely, focusing the students' writing on their own experiences. Some created sets of assignments that required students to write in all of these ways. While some teachers had students write many different types of essays and consequently gave little attention to the writing process, others created classrooms that were essentially writing workshops—students practiced generating ideas, drafting, and reworking their writing often and with the help of peer critique. In any case, students learn different skills when they are asked to use their own experiences as their subject matter, as opposed to explicating another author's work or integrating a variety of sources in a coherent way. In addition, when students learn to give and receive feedback on their writing, they have a different experience with writing than when their only audience is their instructor and when they are not expected to revise their work.

History courses also differed within and across institutions. Lectures were the predominant mode of instruction, and, as was the case with other equivalent introductory courses, the sections in the baccalaureate institution generally enrolled more students. Depending on the section, students' grades might be based exclusively on tests or on some combination of tests and written assignments. The reading load appeared to be somewhat heavier in the baccalaureate institution; students in these classes also were more likely to be asked to read more primary sources. General expectations for students, e. g., meeting deadlines and providing opportunities for extra credit, appeared to be similar. However, a closer examination of the types of extra-credit options that were available revealed some differences. At the baccalaureate institution, the options encouraged students to extend a writing assignment that had already been given. At the community colleges, the options were new tasks, e.g., earning points for participation, conducting a library search, providing the answer to a historical question, and completing all homework exercises. These differences may send subtle but important messages about valued student behaviors, and they could lead to socialization differences between students in the two settings.

The method as a research and discussion tool

As we asserted at the outset of this study, this project only begins to scratch the surface in describing classroom contexts and academic tasks. Although the method provides a useful structure for organizing data on individual faculty member's perceptions of what is happening in their classrooms and the kinds of tasks and social expectations they have for their students, other perspectives are needed to complete the picture. For example, some attempt needs to be made by trained observers to verify faculty members' estimates of the time spent in various teaching behaviors—reviewing, giving directions, providing feedback, etc. In addition, evaluated tasks need to be collected and analyzed, as well, in order to understand how this feedback affects student perceptions of performance standards and their understanding of how to complete subsequent tasks. Perhaps most importantly, the method needs to be expanded to include students' perceptions of the course, the tasks, and the extent to which the performance-for-grade exchange is a factor in their course learning.

Nevertheless, the study provides new insights regarding what happens in baccalaureate and community college classrooms; what students are asked to learn and how they are asked to learn, as well as what student behaviors and attitudes are reinforced by faculty grading practices.

As a discussion tool for faculty teaching the same course (or working to improve a course), the method has great potential. Too often, discussions of course curricula begin and end with revising a catalogue description, choosing a common text, preparing a common syllabus, or discussing which works or topics should be covered. The method used in this study takes the faculty into areas they rarely discuss—how they organized and presented information, what they have students do in their courses, how they evaluate their performance, and how they expect students to behave. The faculty members from the study who also participated in a workshop we conducted this past summer indicated that such discussions were valuable in helping them understand the more subtle differences in how individuals teach the same or the equivalent course. On the other hand, given the differences we found across sections of the same course within a given institution, we would suggest that faculty within the same institution may need to consider their own differences before striving for comparability across institutional settings.

REFERENCES

American Council on Education. National Center for Academic Achievement and Transfer. (1990). "An Academic Model of Transfer Education," *Transfer*, 1(1), 1–4.

American Council on Education. National Center for Academic Achievement and Transfer. (1991). *Setting the National Agenda: Academic Achievement and Transfer*. Washington, DC: American Council on Education

Adelman, C. (1989). "Using Transcripts to Validate Institutional Mission: The Role of the Community College in the Postsecondary Experience of a Generation." Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Atlanta, GA.

Becker, H. S., Geer, B., & Hughes, E. C. (1968). *Making the Grade: The Academic Side of College Life*. New York: John Wiley & Sons.

Berliner, D. C. (1983). "Developing Conceptions of Classroom Environments: Some Light on the T in Classroom Studies of ATI". *Educational Psychologist, 18* (1), 1–13.

Blumenfeld, P., Mergendoller, J., & Swarthout, D. (1987). "Task as a Heuristic for Understanding Student Learning and Motivation." *Journal of Curriculum Studies,* 19, 135–148.

Doyle, W. (1983). Academic work. *Review of Educational Research, 53* (2), 159–199.

Marx, R.W., & Walsh, J. (1988). "Learning from Academic Tasks." *The Elementary School Journal, 88*(3), 207–219.

McGrath, D., & Spear, M. J. (1991). *The Academic Crisis of the Community College*. Albany: SUNY.

McKeachie, W. J., Pintrich, P. R., Lin, Y.-G., Smith, D. A. F., & Sharma, R. (1990). *Teaching and Learning in the College Classroom: A Review of the Research Literature, 2nd edition*. Ann Arbor: National Center for Research to Improve Postsecondary Teaching and Learning University of Michigan.

Lawrence, J. H., Hart, K. A., Dickmann, E. M., Bentley, R. J., Saulsberry, K., & Linder, V. P. (1990). "A Comparison of the Teaching Goals, Assumptions, and Practices of Community College and Transfer Institution Faculty." Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Pintrich, P. R. (1989). "The Dynamic Interplay of Student Motivation and Cognition in the College Classroom." In C. Ames, and M. Maehr (Eds.), *Motivation and Achievement: Motivation-enhancing Environments, Vol. 6*. (pp. 117–160). Greenwich: JAI Press.

Ratcliff, J. L. & Jones, E. A. (1991). "Are Common Course Numbering and a Core Curriculum Valid Indicators in the Articulation of General Education Credits among Transfer Students?" Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Richardson, R. C., & Bender, L. W. (1987). *Fostering Minority Access and Achievement in Higher Education: The Role of Urban Community Colleges and Universities*. San Francisco: Jossey-Bass.

Richardson, R. C., Fisk, E. C., & Okun, M. A. (1983). *Literacy in the Open Access College*. San Francisco: Jossey-Bass.

Schmuck, R. A. (1978). "Applications of Social Psychology to Classroom Life." In D. Bar-Tal & L. Saxe (Eds.), *Social psychology of education: Theory and research* (pp. 231–255). New York: J. Wiley.

Shulman, L. S. (1986). "Paradigms and Research Programs in the Study of Teaching: A Contemporary Perspective." In M. C. Wittrock (Ed.), *Handbook of Research on Teaching, 3rd edition* (pp. 3–36). New York: Macmillan.

Stark, J. S., Lowther, M. A., Bentley, R. J., Ryan, M. P., Genthon, M., Martens, G. G., Wren, P. A., & Shaw, K. M. (1990). *Planning Introductory College Courses: Influences on Faculty*. Ann Arbor: NCRIPTAL, University of Michigan.

Wechsler, H. (1989). *The Transfer Challenge: Removing Barriers, Maintaining Commitment*. Washington, DC: Association of American Colleges.